PAINT and VARNISH Production

THE TECHNICAL MAGAZINE FOR MANUFACTURERS OF PAINT, VARNISH, LACQUER AND OTHER SYNTHETIC FINISHES

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MAY
1953

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(Established in 1910 as The Paint and Varnish Record)

VOL. 43 MAY, 1953 NO. 5

NEXT ISSUE

The June issue will carry a comprehensive article on organic protective coatings for metal cans. The author discusses the various can linings employed to-day by the can industry together with the merits and shortcomings of each. The article also deals with such important factors as characteristics desired in can coatings, application techniques, economic considerations, and future trends in can coatings.

★ FEATURES

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Published Monthly by
Powell Magazines, Inc.
Executive and Editorial Offices
855 Ave. of the Americas
New York 1, N. Y.
BRyant 9-0499

JOHN POWELL, *Publisher*
ANTHONY ERRICO, *Editor*
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PAINT and VARNISH PRODUCTION is published monthly at Easton, Pa. by Powell Magazines, Inc. John Powell, president; Ira P. MacNair, vice-president and treasurer; Alice L. Lynch, secretary. Entered as second class matter at Post Office at Easton, Pa., Jan. 30th, 1952, under the Act of March 3, 1879. Subscription rates: United States and Possessions, $3.00 a year, $5.00 for two years, $10.00 for five years. Canada, $4.00 a year. Pan American Countries, $4.00 a year. All other countries $8.00. Editorial and business office: 855 Avenue of the Americas, New York 1, N. Y. BR-9-0499.

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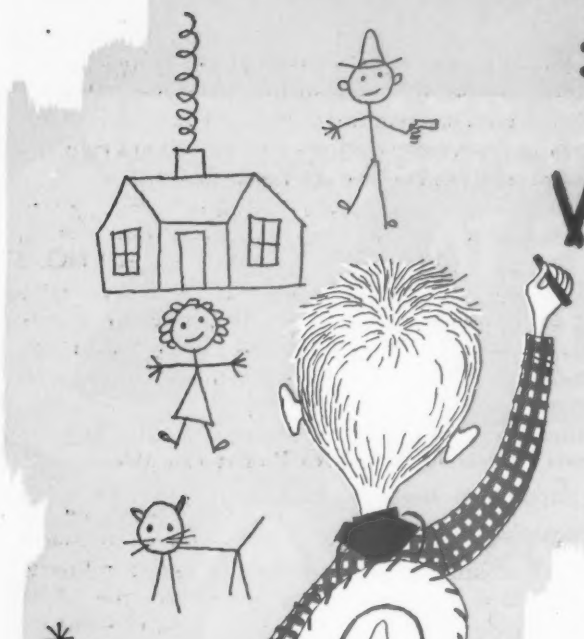

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Editorial Comment

"Personalized" Service

AT THE recent meeting of the Commercial Chemical Development Association in New York, Nolan B. Sommer, treasurer of the Association, predicted that a more "personal" service must be adopted by the chemical industry in future sales operations.

In analyzing the reasons for such a trend, Mr. Sommer touched on one important point — growing competition. Since World War II, most firms have been in a "sellers' market", and as Mr. Sommer aptly put it, "one thing is clear: the need for 'sellers' is rapidly replacing that for 'allocators'."

In order to meet the competitive days ahead, firms must take steps to provide their customers with the best technical service possible.

The paint industry has long recognized the need for technical service in the sale of their many products. This is especially true of those firms engaged in the manufacture of product finishes and maintenance coatings. Here "personalized" service has meant the difference between acceptance or rejection of a product. In most cases, the man who offers this service is the "technical salesman."

The duties of the technical salesman are many and varied. First, his main purpose is to sell his company's product. In more ways than one, he can be classified as a technical consultant. He must be able to offer advice to his customers and prospective customers regarding his products, such as uses, advantages, and even limitations. Because of his knowledge of business trends and economic conditions, he may be considered the market research man for the firm he represents.

Keeping the customers satisfied at all times is another primary function ascribed to the technical salesman. This bears the responsibility of meeting shipping schedules, seeing to it that the product meets the customers' specifications, and offering prompt attention when anything goes "haywire."

In this connection, close cooperation between the sales and development group is most essential for the success of technical service. By having frequent meetings, conferences, and round-table discussions, much can be accomplished to insure complete customer satisfaction.

The fundamentals of selling will not greatly change during the next few years, but with increased competition on the horizon, the forward-looking executive will take stock of his own selling techniques, and institute changes wherever necessary to render the best possible technical service to all of the firm's customers.

Pigments Take Plenty of Sulfur

ONE OF our most important basic raw materials is sulfur. We all know the part it plays in our chemical processing industries. For example, paint pigments are one of the largest consumers of sulfur. Statistics show that annually, some 1,260,000 tons of sulfuric acid are used in the production of titanium, zinc and lead type pigments. In terms of sulfur, this means 400,000 long tons — a lot of sulfur This places the pigment industry fifth on the list of the many industries that consume sulfur in one form or another.

Paint Bidding

IT HAS been long felt that present bidding methods employed by states and municipalities are outmoded and could stand a thorough modernization.

In this connection, we are presenting in this issue a very informative article on a suggested plan for the purchase of paint products by various state and municipal governments.

The author points up the inadequacies of present-day methods and proposes that federal specifications for the purchase of paint products be used as a guide by the various state and municipal agencies.

Reading of this article is strongly recommended (see page 35). Your comments on the suggested plan as outlined by the author will be welcomed.

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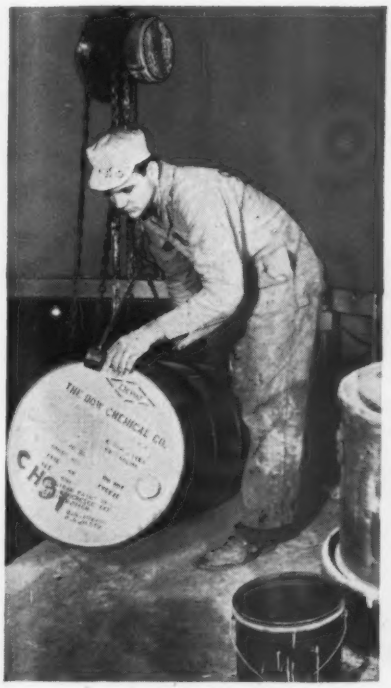

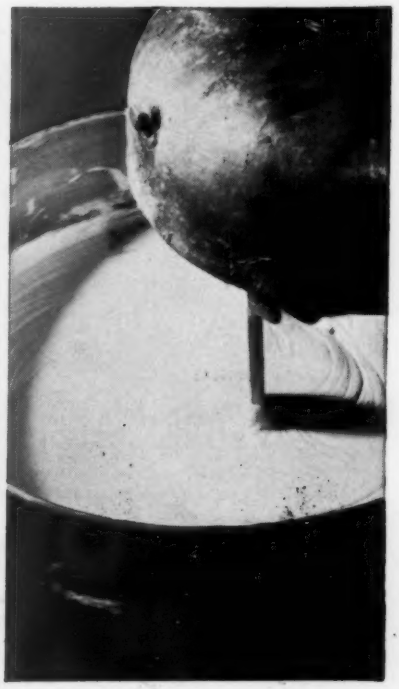

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the chemist's page

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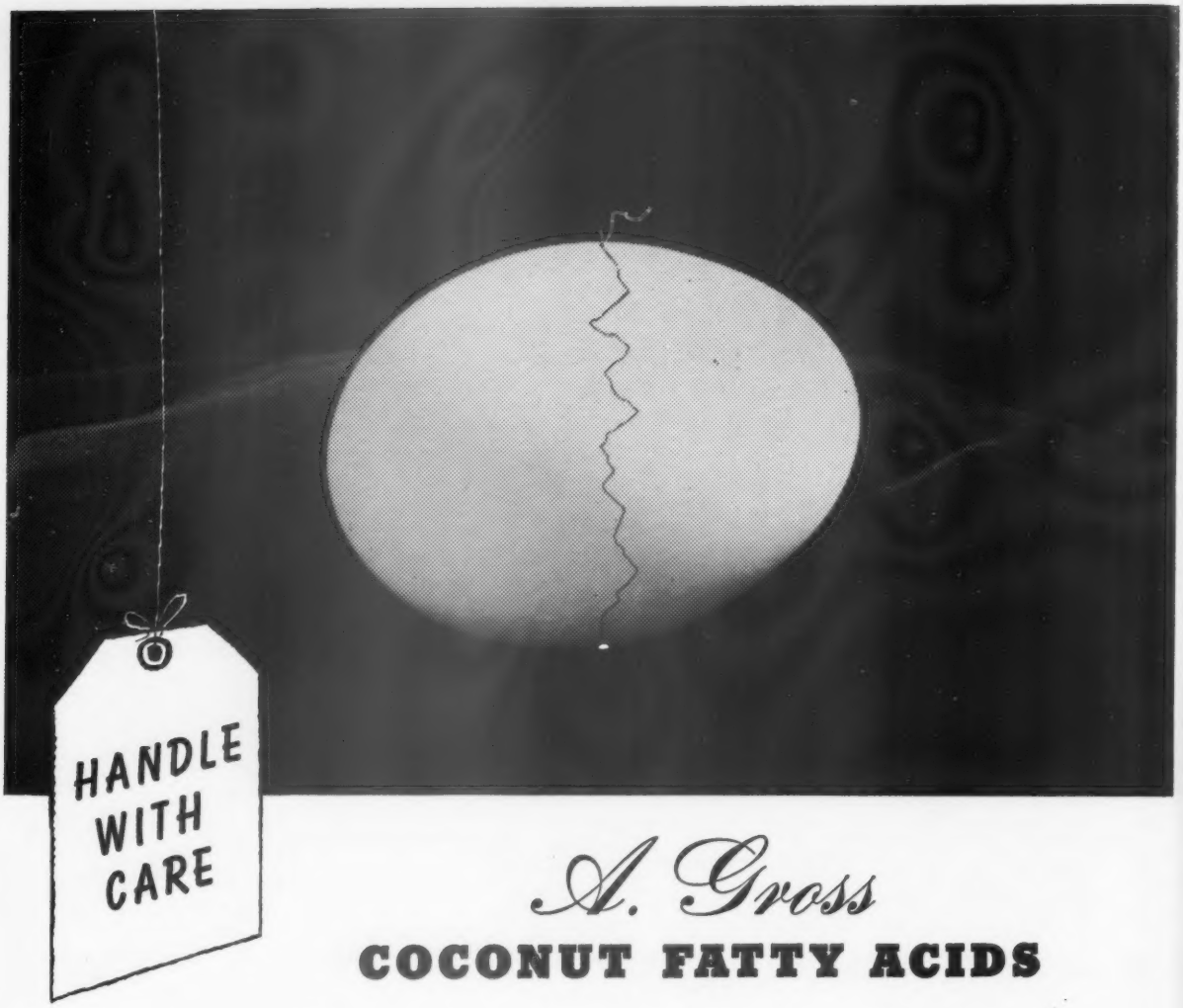

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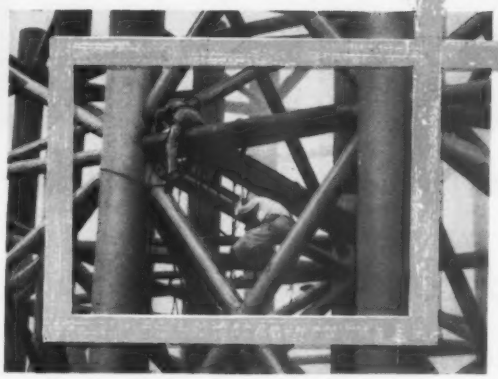
easy ...solution



This structure is being painted with properly applied coatings formulated with VINYLITE Brand Resins as the base.

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Photos courtesy of Minnesota Mining & Manufacturing Company, Detroit 3, Mich., whose COROGARD coatings system, using VINYLITE Resins as the base, were used in CASE 2 and repainting CASE 1.

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A great many other U. S. Government specifications call for coating products made from resins which are produced by BAKELITE COMPANY. Detailed information on specifications and formulations are kept always up-to-date by BAKELITE COMPANY for your assistance.

• **For further facts about these resins and finishes, write Dept. PW-75, Bakelite Company, 30 East 42nd Street, New York, N. Y.**

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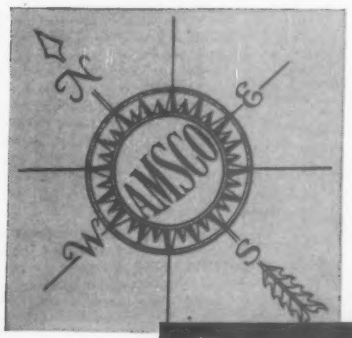

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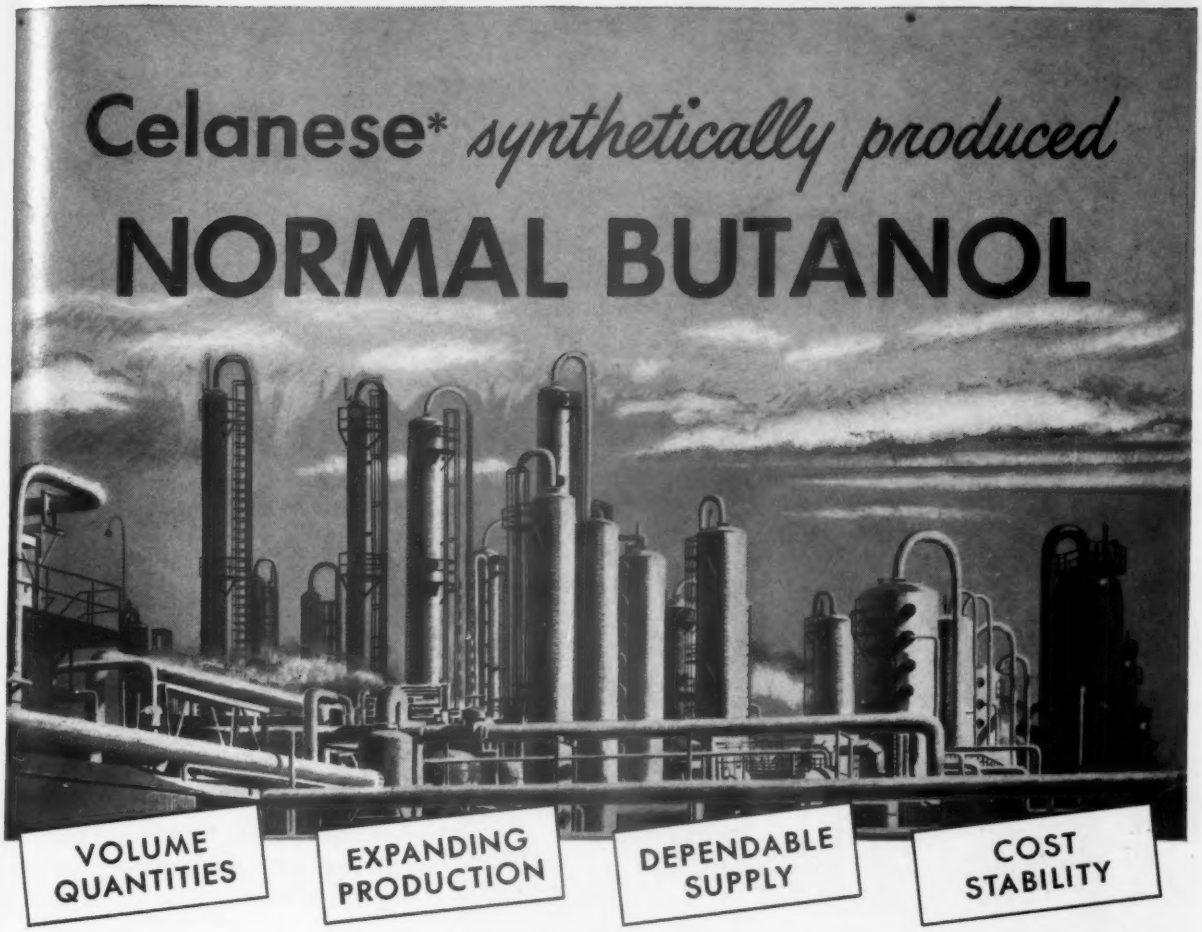

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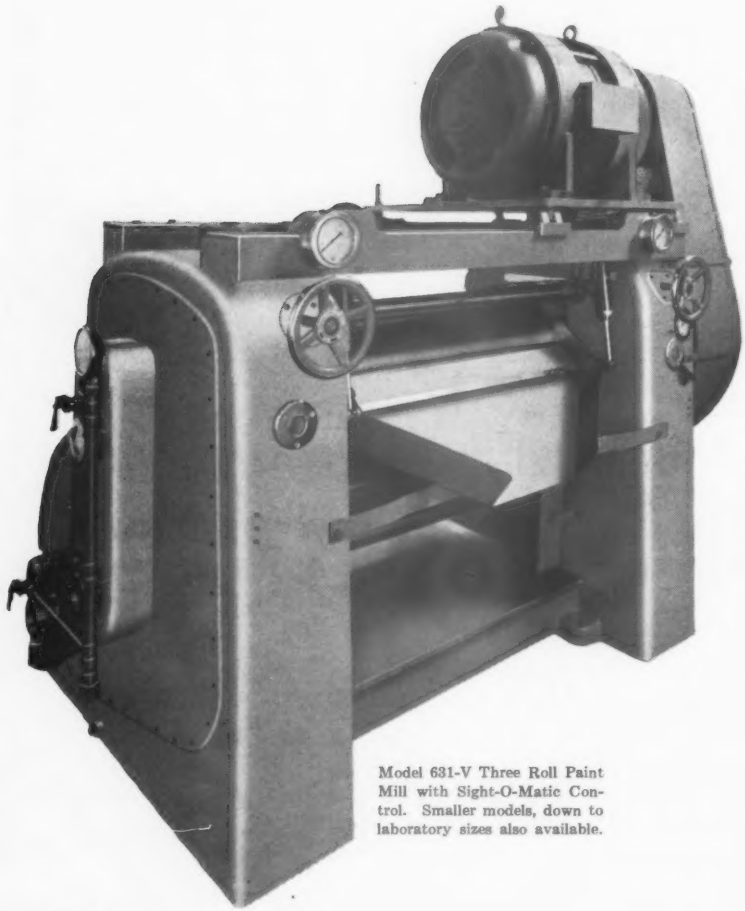
Celanese* CHEMICALS

A "STRONG CASH POSITION"

does not always indicate STRONG MANAGEMENT!



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Effect of Platy Mica on Vinyl Systems

STUDY INVOLVES VINYL PRIMERS AND VINYL-ALKYD PAINTS

By Dr. MAX KRONSTEIN, L. F. DeLONG and ALFRED W. NORMAN

College of Engineering
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CONSIDERABLE progress has been made in recent years on the use of polyvinyl resin-based coatings. The Rock Island District of the U. S. Corps of Engineers has reported favorable results on fresh water exposure tests of vinyl coating systems applied on hydraulic structures. (1) And the U. S. Navy, early in 1951, wrote the first specifications for vinyl-alkyd paint for outboard use. Here, salt water resistance is expected.

Based on the findings which have been reported earlier about the effect of platy extenders in alkyd paints (2, 3) it seemed to be of interest to study the use of mica as a platy extender in these newer types of paint materials.

Before entering the development of the complete coating system required in practical applications, studies were made on:

A. The effect of platy extender of the gray vinyl alkyd paint on steel,

B. The effect of platy extender in red lead vinyl primer and

C. The effect of platy extender in the so-called "Wash Primer."

Based on these developments, the complete systems on Wash Primer, Red Lead Vinyl Primer and Gray Vinyl Alkyd Paint were studied and hereby again materials without and with platy extender material were compared.

A. Vinyl Alkyd Systems

Preparation of the Paints — Three variations of a gray, vinyl-alkyd paint (No. 27 in Military Specification MIL-P-15936 (SHIPS) 15 January 1951) were used in these tests: one, using all non-platy extender; one using 50% non-platy extender and 50% platy extender; and one using all platy extender. They have been designated Paint A, B and C. The detailed formulation of Paint A is given herewith:

Formulation of PAINT A (using no platy extender).

30	parts Titanium Dioxide (Titanox RA NC, Titanium Pigment Corp.)
110	parts Zinc Oxide (XX-601, New Jersey Zinc Co.)
1.2	parts Lamp Black (Blue Tone, L. Martin Co.)
80	parts Non-platy extender*
	*Magnesium silicate (type B of Spec. MIL-M-15173)
515	parts Vinyl Resin Solution consisting of
	75 parts Vinyl Resin (Type VAGH, Bakelite Division)
	400 parts Methyl Isobutyl Ketone
	40 parts Xylene
195	parts Alkyd Resin Solution (Glyptal ZV 3689, General Electric Company)
0.2	parts Lead Naphthenate Drier Liquid
0.1	parts Cobalt Naphthenate Drier Liquid
0.1	parts Manganese Naphthenate Drier Liquid

PAINT A		PAINT B		PAINT C	
Panel	Film Thickness	Panel	Film Thickness	Panel	Film Thickness
A-1	3.45 mil	B-1	3.45 mil	C-1	3.42 mil
A-2	3.53	B-2	3.35	C-2	3.15
A-3	3.47	B-3	3.37	C-3	3.23
A-4	3.38	B-4	3.42	C-4	3.23

Table I. Thickness of paint films (av. of 3 readings on each panel)

Paint	Glossmeter Reading (average of 3 readings)
A	2
B	1.5
C	2

Table II. Glossmeter readings (with instrument setting at 9

'AINT B (using 50% non-platy extender and 50% platy e: ender) was made in the same manner as A, except that t amount of extender was divided into 40 parts non-platy e: ender and 40 parts wet ground mica, 325 mesh.

'AINT C (using platy mica extender only) was made in t same manner as A, except that the 80 parts of non-platy e: ender were replaced with 80 parts of 325 mesh mica.

Each of the paints was ground in the pebble mill for 42 h rs.

t was observed that the three paints differed in the fine- n s of grind in that Paint A had a Fineness of Grind of 5+ o the North Scale, while Paints B and C had a Fineness of G ind between 1 and 2. This may be attributed to the size of the 325 mesh mica.

Application of the Paints — The paints were applied with a Fisher-Payne dip-coater on bare, vapor-degreased, automotive steel panels. Before application, the edges of the panels were coated to ¼ inch with zinc chromate primer of Specification MIL-P-6889A (AN-P-656) to avoid possible rusting from the edges. Three coats were applied to four panels for each type of paint.

Thickness of Coats — The thickness of the paint films was measured with the Magne-Gage on three points of each panel and the average figure was determined from these. The results are given in TABLE I.

	Amber Filter	Green Filter	Blue Filter
Paint A	27	28	30
Paint B	27.5	28.25	31
Paint C	26.5	27	29.75

Table III. Reflectance readings (on 2 areas of each panel)

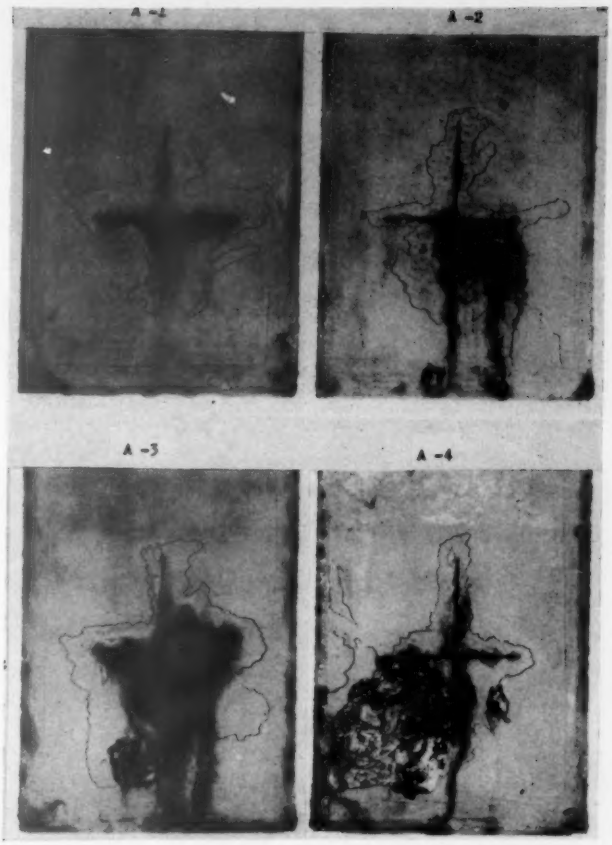


Fig. I. Appearance of Panel A-1 to A-4 after 1000 hrs. saltfog exposure

Appearance of the Panels — The appearance of the painted panels was compared (a) by measuring the gloss and (b) by comparing the reflectance, using a photoelectric reflection meter (Model 610, Photovolt Corporation, New York). The results of these tests are given in TABLES II and III.

The reflectance readings with the green filter are especially important since they give the best indication of the reflectance as it appears in comparing dull finishes.

Salt-Fog Exposure — All the coated panels were exposed for 1000 hours in the salt-fog cabinet. At specified time intervals they were examined visually and electrographic prints were made. The results of the visual examination are given in Table IV. The appearance of the panels after the 1000 hour salt-fog test is shown in the photos in Figures 1, 2 and 3. Figure 4 shows representative electrographic prints which were made at stated intervals during the salt-fog exposure.

Findings — From Table IV and the electrographic prints and

VISUAL APPEARANCE

PAINT SAMPLE	AFTER 96 HRS.	144	264	336	456	504	576	672	768	840	936	1000
A-1	Good	1 mm	1 mm	2 mm	4 mm	7 mm	9 mm	Some peeling	13 mm	17 mm	18 mm	20 mm
A-2	Good	Good	1 mm	2 mm	4 mm	6 mm	9 mm	10 mm	14 mm	15 mm	15 mm	16 mm
A-3	Good	1 mm	1 mm	2 mm	4 mm	10 mm	11 mm	Some peeling	13 mm	Increased peeling	Increased peeling	30 mm
A-4	Good	1 mm	1 mm	2 mm	3 mm	4 mm	4 mm	6 mm	6 mm	17 mm	17 mm	30 mm
B-1	Good	Good	0.5 mm	1 mm	2 mm	3 mm	3 mm	4 mm	5 mm	7 mm	7 mm	Large blisters to 7 mm
B-2	Good	Good	Good	1 mm	1 mm	4 mm	5 mm	5 mm	5 mm	5 mm	9 mm	14 mm
B-3	Good	Good	0.5 mm	1 mm	2 mm	4 mm	5 mm	6 mm	6 mm	6 mm	6 mm	12 mm
B-4	Good	Good	Good	1 mm	2 mm	4 mm	4 mm	6 mm	7 mm	8 mm	8 mm	9 mm
C-1	Good	Good	0.5 mm	1 mm	1.5 mm	2 mm	2 mm	2 mm	3 mm	3 mm	4 mm	5 mm
C-2	Good	Good	Good	1 mm	1 mm	1 mm	2 mm	2 mm	4 mm	4 mm	8 mm	9 mm
C-3	Good	Good	Good	0.5 mm	1 mm	2 mm	2 mm	2 mm	2.5 mm	3 mm	4 mm	4 mm
C-4	Good	Good	Good	1 mm	2 mm	2 mm	2 mm	3 mm	4 mm	4 mm	6 mm	8 mm

Table IV. 1000-hour salt fog exposure test of vinyl-alkyd paints compounded with and without platy extender

(Figures indicate extent of blistering from cross lines)

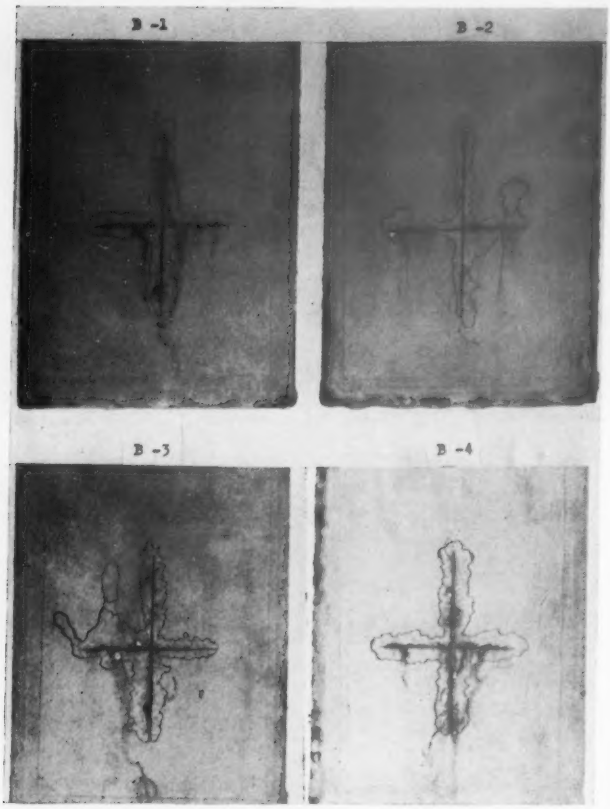
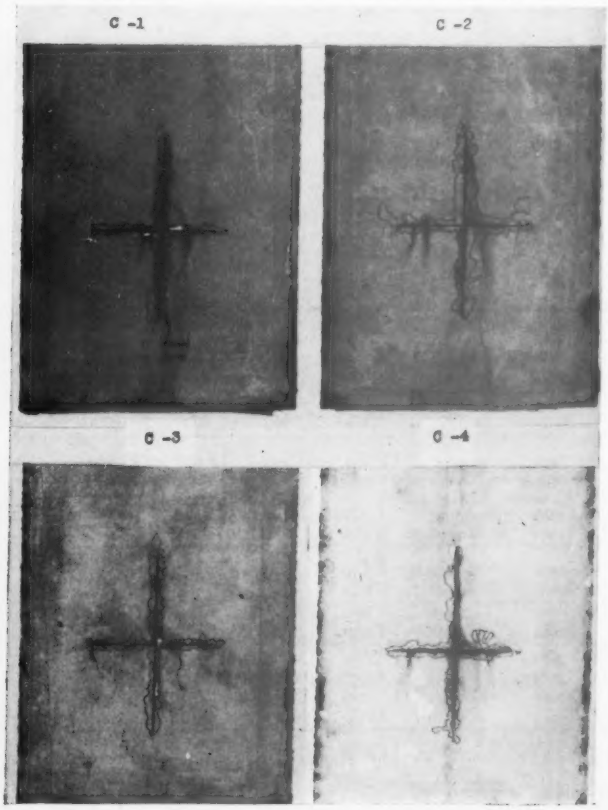


Fig. 2. Appearance of Panel B-1 to B-4 after 1000 hrs. of saltfog exposure

Fig. 3. Appearance of Panel C-1 to C-4 after 1000 hrs.saltfog exposure



the photos in Figures 1, 2 and 3, it is evident that the platy mica extender delayed the spreading of moisture from the test cross considerably. The mica-containing paint films retained a generally good appearance throughout the 1000 hour salt-fog test.

In spite of the presence of mica in Paints B and C, no increase in reflection was observed in the present test series. (4)

B. Red Lead Vinyl Primer

Military Specification MIL-P-15929 (SHIPS), 15 January 1951, introduced a "Primer, Vinyl-Red Lead" as Formula No. 119 for use over "pretreatment, wash primer (Formula No. 117, Spec. MIL-P-15328" (SHIPS)). It stated that it should never be used directly on metal surfaces of any type. In this state of the development and evaluation series, however, the various specimens were tested on bare steel for the purpose of comparison. (The behavior of the materials on a wash-primer pretreatment is shown in Part D of this report).

Material Used	Primer A	Primer B	Primer C
Red Lead (Type 1, Grade C, Spec. TT-R-191)	220 grams	165 grams	165 grams
Mica (25% of 220)	—	55	27.5
Magnesium Silicate (Type B of Spec. MIL-M-15173)	—	—	27.5
Vinyl Resin (VAGH)	145	145	145
Tricresyl Phosphate (Spec. TT-T-656)	15	15	15
Methyl Isobutyl Ketone	295	295	295
Toluene (Spec. TT-T-548)	295	295	295

Table V. Composition of three primer formulations

Paints Used — Military Specification MIL-P-15929 calls for red lead in a vinyl-resin solution with a plasticizer but calls for no extender material whatsoever. In this investigation, this formula was compared with one containing a platy mica extender and another containing a mixture of mica with magnesium silicate. The platy mica extender used is a wet

Type of Panel Primer No.		Film Thickness (mils)	Gloss Readings (Setting at 96)	Colorimeter Readings Tristimulus Values Tri-green	Tri-blue	Tri-amber
A.	31	3.00	40.0	27.5	2.5	49.75
	32	3.00	39.75	27.5	2.5	49.0
	33	2.95	—	—	—	—
B.	28	3.25	—	—	—	—
	29	2.95	18.5	26.5	4.0	44.0
	30	2.85	15.0	26.0	3.5	43.25
C.	25	2.80	30.75	26.5	2.5	46,5
	26	2.70	—	—	—	—
	27	2.75	30.25	26.5	2.5	46.0

Table VI. Characteristics of test panels with two coats of prime

ground mica which meets Military Specification MIL-P-15976 (SHIPS). These three formulations given in TABLE V have been designated as Primers A, B and C and have the following basic differences:

Primer A — made according to Spec. MIL-P-15929
Primer B — made with wet ground mica
Primer C — made with 50% wet ground mica and 50% magnesium silicate

Panel No.	Primer Coat	Paint Coat	Film Thickness		
			Primer	Paint	Total
37	A	c	1.245	1.605	2.85
38	A	c	1.300	1.600	2.90
39	A	c	1.300	1.550	2.85
40	B	c	1.050	1.550	2.60
41	B	c	1.245	1.755	3.00
42	B	c	1.190	1.710	2.90
46	C	c	1.020	1.780	2.80
47	C	c	0.950	1.650	2.60
48	C	c	1.060	1.690	2.75

Table VII. This table shows characteristics of panels having one coat of primer and one coat of a vinyl-alkyd paint (no wash primer in this system)

Panel No.	Primer Type	Extent of Blistering in Millimeters						
		After 140 hrs.	280	610	770	930	1120	1330
31	A	10	15	15	19	20	20	20
32	A	12	20	20	20	20	23	23
29	B	3.5	13	14	14	15	16	16
30	B	12	12	12	12	17	20	22
25	C	2	10	11	12	12	13	13
27	C	2	10	22	22	22	23	23

Table VIII. Table gives visual report on the extent of blistering from test crosslines during saltfog exposure (panels have been primed with 2 coats)

Application of the Paints — The primers reported here were applied with a Fisher-Payne dipcoater on bare, vapor-degreased, automotive steel panels. One group of panels was given 2 coats of the primers, another group was given 1 coat of primer and 1 coat of vinyl-alkyd paint (Paint C under "Vinyl Alkyd Systems" (5).)

The coated panels were air-dried and aged before testing.

Evaluation Tests — The appearance and film-thickness of the completed samples are shown in Tables VI and VII.

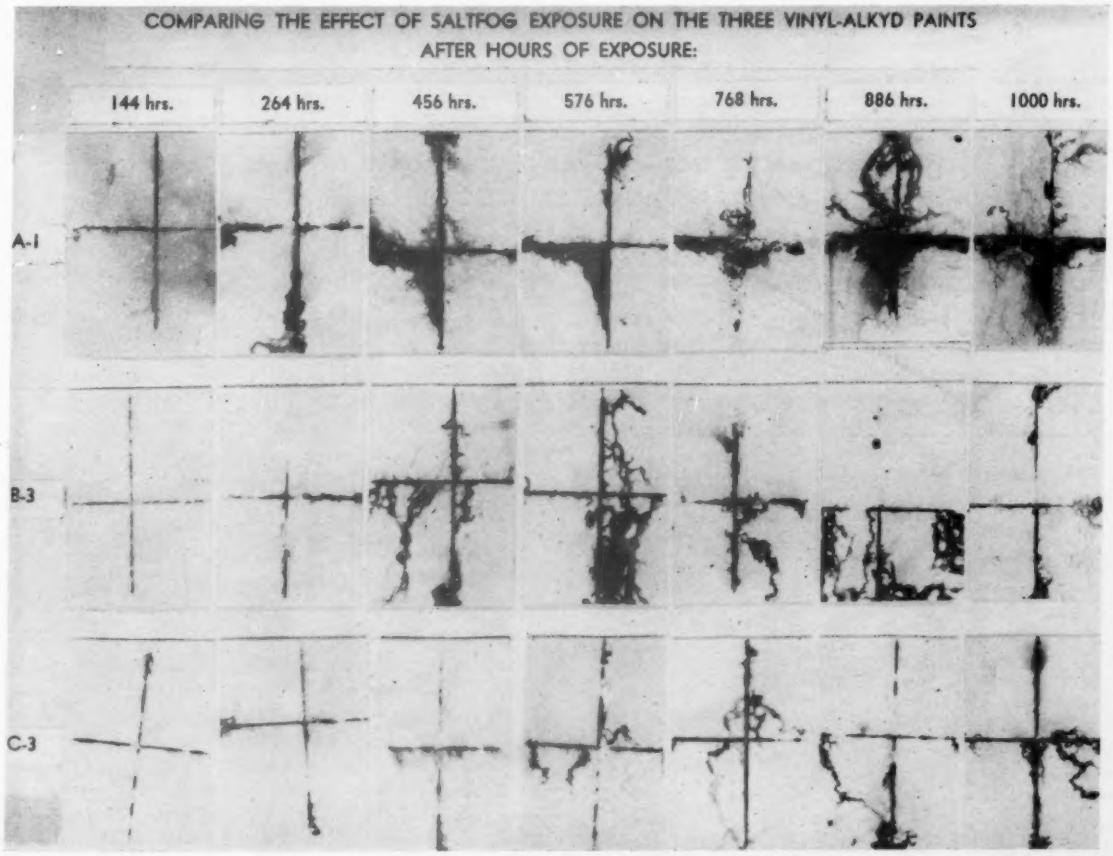


Figure 4

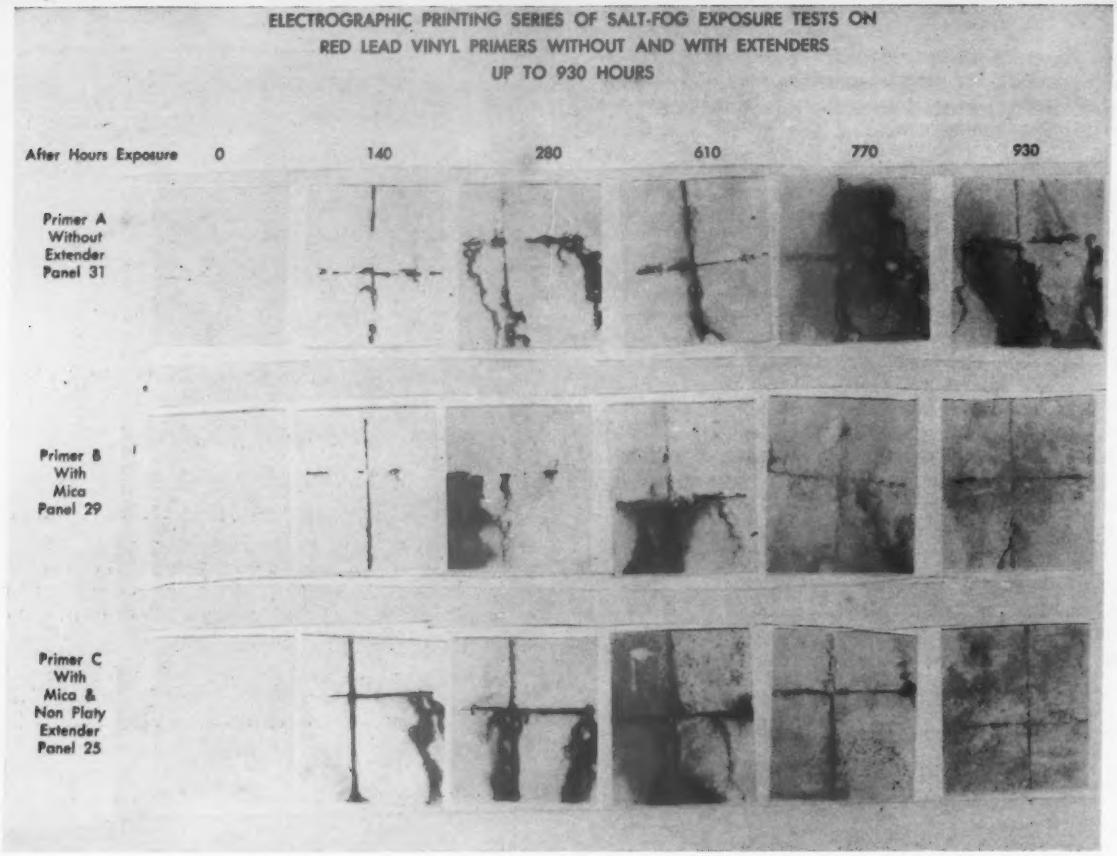


Figure 5

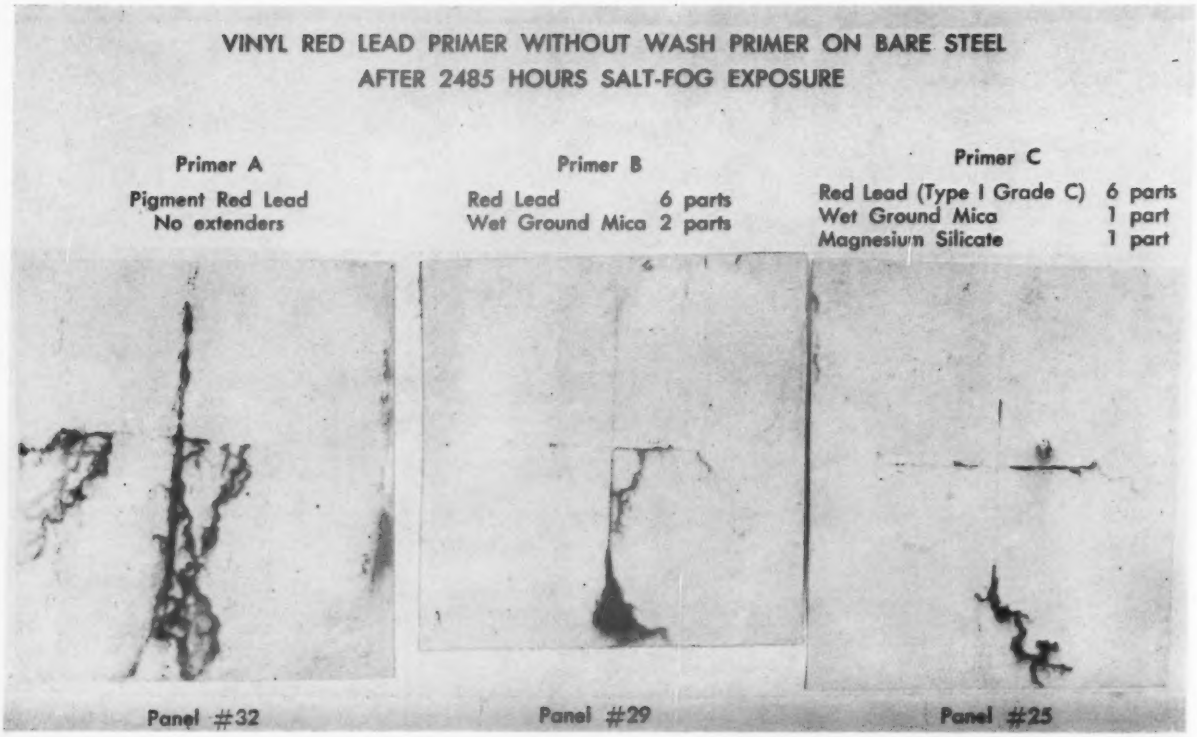


Figure 6

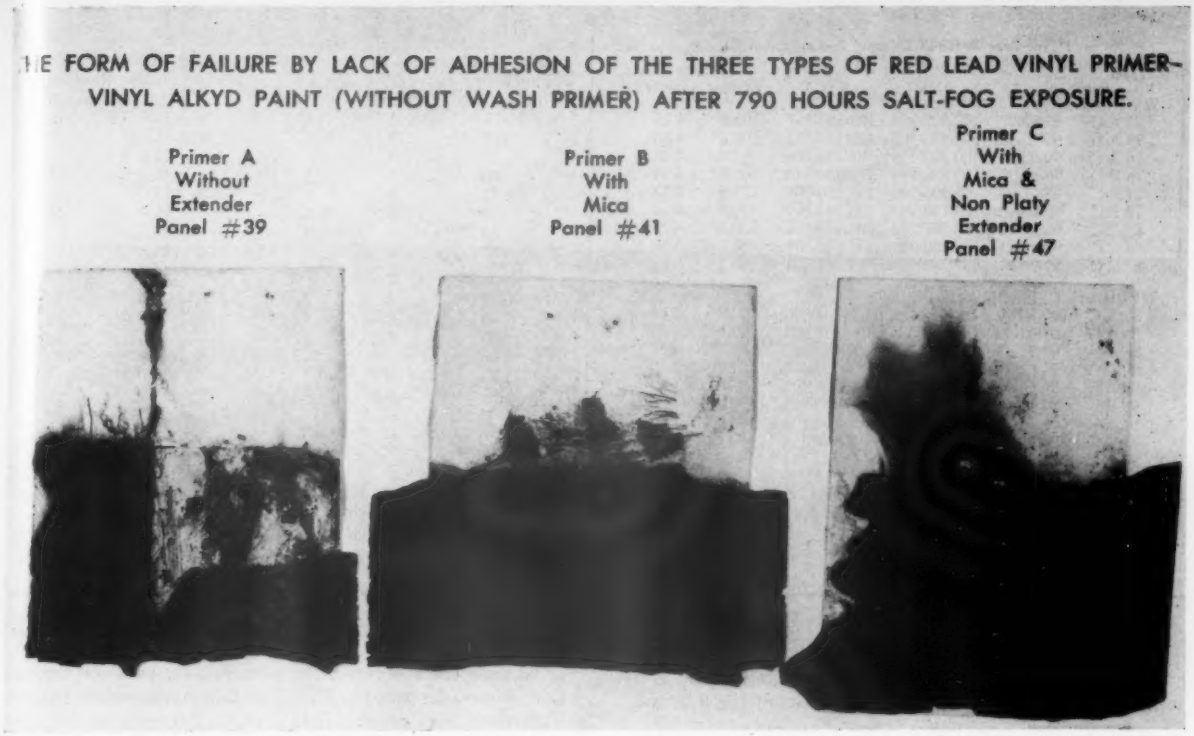

E FORM OF FAILURE BY LACK OF ADHESION OF THE THREE TYPES OF RED LEAD VINYL PRIMER-VINYL ALKYD PAINT (WITHOUT WASH PRIMER) AFTER 790 HOURS SALT-FOG EXPOSURE.
Primer A Without Extender Panel #39
Primer B With Mica Panel #41
Primer C With Mica & Non Platy Extender Panel #47

Figure 7 (above)

Inasmuch as vinyl, red lead primers have a relatively low adhesion to bare steel, the effect of the addition of mica on the adhesion of these primers to bare steel was studied. The report on the extent of blistering, shown in Table VIII, indicates little difference in the behavior of the primers with the selected extender formulation and with the extender-free formulation.

While it was observed in all cases that the vinyl, red lead primers have poorer adhesion on bare steel than on steel pretreated with a wash-primer, the films themselves resisted deterioration in a 2485-hour salt-fog exposure (Figure 5 and 6). The extender content of the samples tested did not alter these characteristics to any visible extent. In the second group of panels, where vinyl-alkyd paint was applied on red lead, vinyl primers, the loss in adhesion was more clearly visible. Figure 7 shows examples of the loss in adhesion with the 3 different types of primers. The condition of the film of the primers with an extender was more uniform than in the case of the extender-free primer.

Wash Primer

ALTHOUGH the practical test for a primer material is as a part of a complete paint system, studies have been made comparing the presently specified magnesium silicate wash primer with a formulation using a platy mica extender.

Materials Used — The polyvinyl-butyral primer of Military Specification MIL-P-15928 (SHIPS), June 1, 1950, is required as a base for red lead, vinyl-alkyd primer of Specification MIL-P-15929 (SHIPS). Besides serving as a base in vinyl-alkyd coating systems, this type of wash primer is used also as a base on steel for other coating systems such as alkyd type or oleoresinous type coatings.

Table IX. Coating thickness of wash primer on bare steel panels

Panel Designation	Magne-Gage Readings (Magnet 1—Calibration A) Area 1	Area 2	Area 3	Average	Coating Thickness (mils)*
WP-I -73	81-77-80	85-85-85	85-84-86	82.8	.325
74	81-81-84	72-75-70	85-86-81	79.4	.305
75	80-82-76	86-86-84	71-75-73	79.2	.301
76	76-80-71	71-73-71	77-80-76	75.0	.280
77	76-71-70	82-77-81	77-76-81	76.8	.290
78	76-73-76	78-77-81	88-85-88	80.2	.310
82	83-85-84	87-86-89	85-83-82	84.9	.340
83	91-91-93	91-91-87	83-81-78	87.3	.360
84	75-74-75	78-77-81	87-87-82	79.6	.308
WP-II-85	93-97-96	96-95-93	100-102-98	96.7	.455
86	88-90-90	95-92-95	97-101-102	94.4	.435
87	95-93-97	95-95-94	88-90-90	93.0	.425
88	90-91-91	88-90-89	101-101-101	93.6	.428
89	109-108-112	96-96-93	86-85-86	96.8	.454
90	90-92-88	98-87-90	92-95-93	90.7	.403
94	72-73-75	83-85-83	89-95-92	83.0	.350
95	91-88-90	105-101-106	86-91-88	94.0	.432
96	98-97-95	105-102-100	102-98-98	99.4	.480

*Specification calls for 0.3 to 0.5 mil. coating thickness. The areas are indicated diagramatically in Fig. 11.

Table X. Thickness of wash primer and red lead vinyl primer on steel panels

Panel Designation	Magne-Gage Readings (Magnet 2—Calibration C)** Area 1	Area 2	Area 3	Average	Coating Thickness (mils)
WP-I -73A	25-30-30	50-52-48	55-55-53	44.7	1.75
74A	30-29-28	55-54-53	47-50-46	43.7	1.80
75A	22-22-22	37-41-41	50-49-48	37.0	1.70
76B	30-28-30	50-53-50	60-59-57	46.3	1.80
77B	31-30-28	47-50-50	60-54-55	46.1	1.80
78B	20-21-21	41-41-41	62-61-62	41.3	1.67
82C	45-47-50	56-50-50	45-44-39	47.3	2.00
83C	35-40-36	45-41-43	37-35-39	38.3	1.75
84C	20-21-21	31-37-23	40-40-36	29.0	1.50
WP-II-85A	25-24-25	42-42-42	51-51-49	39.3	1.63
86A	34-30-35	41-45-46	55-56-52	44.3	1.74
87A	25-26-22	45-45-41	55-52-55	41.9	1.68
88B	40-37-41	52-53-53	65-61-61	51.3	1.83
89B	45-45-45	61-65-58	62-60-55	55.0	2.00
90B	23-26-25	55-55-55	55-56-55	44.9	1.75
94C	22-25-30	30-35-39	40-38-38	33.0	1.60
95C	15-20-16	55-64-60	60-57-55	43.3	1.90
96C	31-31-31	40-36-39	40-36-43	36.7	1.70

Panel Designation	Area 1	Area 2	Area 3	Average	Coating Thickness (mils)
WP-I series					
73 A C	92-92-92	105-102-102	109-107-107	100.8	4.25
74 A C	95-95-95	103-103-105	112-115-112	103.8	4.50
75 A C	90-93-90	100-100-101	97-105-105	97.9	4.10
76 B C	96-97-97	110-108-110	110-110-110	105.2	4.68
77 B C	92-92-94	106-106-106	107-106-106	101.6	4.42
78 B C	90-90-90	100-100-101	100-101-100	96.9	4.00
82 C C	95-95-95	100-101-100	107-106-106	100.5	4.25
83 C C	95-92-93	100-100-98	102-102-101	98.2	4.10
84 C C	90-90-87	95-95-96	102-101-101	95.2	3.95
WP-II series					
85 A C	90-90-90	100-100-100	107-106-106	98.8	4.12
86 A C	91-91-90	101-102-101	106-106-106	99.4	4.22
87 A C	90-91-91	101-101-101	107-106-107	99.5	4.22
88 B C	95-92-91	105-106-105	105-106-106	101.2	4.30
89 B C	86-90-90	102-102-101	105-105-103	98.3	4.20
90 B C	93-95-90	101-100-102	103-103-101	98.7	4.25
94 C C	87-87-87	95-95-95	100-100-100	94.0	3.80
95 C C	95-92-91	100-100-100	102-102-101	98.2	4.10
96 C C	85-86-85	95-95-97	102-101-101	94.3	3.90

Table XI. Coating thickness of wash primer, red lead vinyl primer and one coat of vinyl-alkyd paint C

Panel Number	Primer	Paint	Gloss Readings (at two points)	
WP-I -73	A	C	14.5	15.0
74	A	C	14.5	14.5
75	A	C	15.0	15.5
76	B	C	15.0	15.5
77	B	C	15.0	15.0
78	B	C	16.0	16.5
82	C	C	13.5	14.0
83	C	C	14.5	15.0
84	C	C	14.5	14.5
WP-II-85	A	C	14.5	15.0
86	A	C	14.5	15.0
87	A	C	14.5	14.5
88	B	C	15.0	14.5
89	B	C	15.0	15.5
90	B	C	15.0	15.0
94	C	C	14.5	14.5
95	C	C	14.5	14.5
96	C	C	14.0	14.0

Table XII. Gloss measurements on the system comprised of wash primer, red lead vinyl primer and vinyl-alkyd paint C

(Photovolt Glossmeter Setting: 96)

This primer has been used in this investigation and is referred to as composition WP-I. It consists of the following:

Polyvinyl-butyral resin (Bakelite XYHL)	65 grams
Magnesium Silicate (MIL-M-15173)	10 grams
Basic Zinc Chromate (X 2259)	60 grams
Methyl Ethyl Ketone	180 grams
Synasol Solvent	185 grams

Immediately before application a solution consisting of 32.5 grams phosphoric acid (85%) in 180 grams butanol is added.

A variation of this primer was made in which the magnesium silicate was substituted in the same amount by wet ground mica, meeting Military Specification MIL-M-15176 (SHIPS). This composition has been designated WP-II.

Fineness of Grind — These two compositions were tested for fineness of grind. The comparative results are as follows:

	P.C.	*Scale*	*N.S.*	*Scale*
Composition WP-I	3.50	3.25	2.75	2.50
Composition WP-II	3.50	3.50	2.75	2.50

Application — Each composition was applied with a Fisher-Payne dip-coater (slow speed) on 12 vapor-degreased steel panels. The panels have been designated as

Numbers 73 to 78, 82 to 84 } Coated with Composition WP-I

Numbers 85 to 90, 94 to 96 } Coated with Composition WP-II

The film-thickness was measured on each panel using a Magne-gage (Magnet #1, Calibration A) with 3 readings being made on each of three areas. The results are given in Table IX. They show that each of the primers can be applied with similar coating uniformity.

To compare the two wash primers as a base for the red lead primers described in Part B of this investigation, the red lead, vinyl resin primers A to C of Part B were applied over each of the two wash primers, Composition WP-I and Composition WP-II. Film-thickness readings were again made using Magnet #2 and Calibration C. The combined film-thickness of the wash primer and red lead primers is shown in Table X.

The panels were then further coated with a gray, vinyl-alkyd paint, the experimental paint (Chapter A). Film-thickness readings were again made. These are given in Table XI.

Tests on the Coated Panels — To compare the appearance of the coated panels, gloss readings were made and their tristimulus values were determined. The results of these tests showed a very uniform appearance of all the panels. The figures for the tests are given in Tables XII and XIII.

The evaluation tests have shown that better adhesion and longer life for the paint system have resulted from the use of wash primers WP-I and WP-II, than without the wash primers.

Panel Designation	Primer	Paint	READINGS Tri-Amber No. 1	Tri-Amber No. 2	Tri-Blue No. 1	Tri-Blue No. 2	Tri-Green No. 1	Tri-Green No. 2
WP-I -73	A	C	30.5	30.5	32.5	33.0	32.5	32.5
74	A	C	31.5	31.5	33.5	33.5	32.5	32.5
75	A	C	31.5	31.5	33.5	33.5	32.5	32.5
76	B	C	31.5	31.5	33.5	33.5	32.5	32.5
77	B	C	31.5	31.5	33.5	33.5	32.5	32.5
78	B	C	31.5	31.5	33.5	33.5	32.5	32.5
82	C	C	31.5	31.5	33.5	33.0	33.0	32.5
83	C	C	31.0	31.0	33.0	33.0	32.5	32.5
84	C	C	31.5	31.5	33.5	33.0	32.5	32.5
WP-II-85	A	C	31.0	31.5	33.5	33.0	32.5	32.5
86	A	C	31.5	31.5	33.5	33.0	32.5	32.5
87	A	C	31.5	31.5	33.5	33.0	32.5	32.5
88	B	C	31.5	31.5	33.5	33.0	32.5	32.5
89	B	C	31.0	31.5	33.5	33.5	32.5	32.5
90	B	C	30.5	31.5	33.0	33.5	32.5	32.5
94	C	C	32.5	32.0	34.5	34.5	32.5	32.5
95	C	C	31.5	31.5	34.0	34.0	32.5	32.5
96	C	C	31.5	31.5	33.5	33.5	32.5	32.5

Table XIII. Tristimulus readings testing the uniformity of the coating system comprised of wash primer, red lead vinyl primer and vinyl-alkyd Paint C

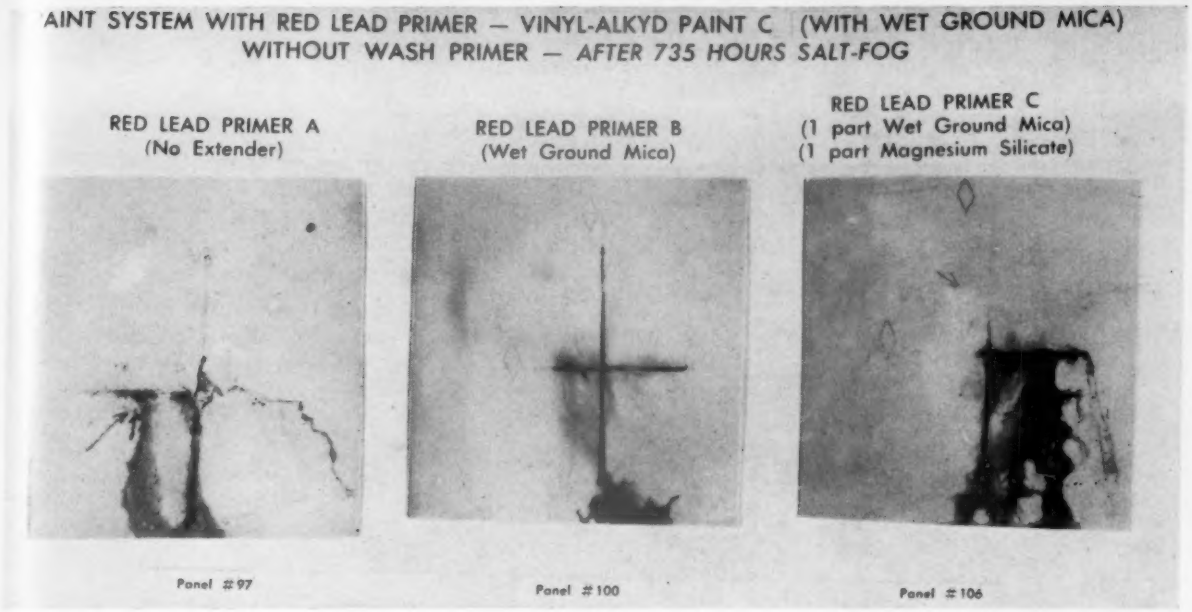

AINT SYSTEM WITH RED LEAD PRIMER — VINYL-ALKYD PAINT C (WITH WET GROUND MICA)
WITHOUT WASH PRIMER — AFTER 735 HOURS SALT-FOG
RED LEAD PRIMER A
(No Extender)
RED LEAD PRIMER B
(Wet Ground Mica)
RED LEAD PRIMER C
(1 part Wet Ground Mica)
(1 part Magnesium Silicate)
Panel #97
Panel #100
Panel #106

Figure 8

For this comparison, new, bare, steel panels were coated with the three primers A to C and with vinyl-alkyd paint, Composition C. These were exposed in the salt-fog chamber and electrographic prints were made at stated intervals. Figure 8 shows the extent of spreading of moisture of the three systems without wash primer, after 735 hours exposure. Figure 9 shows the extent of spreading with the same systems with wash primers WP-I and WP-II, after 735 hours. These prints show an improvement of the coating systems with the use of the wash primers. The system with the wash primer having a platy mica extender compares well with that having the presently specified extender. Figure 10 shows the same wash primers with the same three red lead primers A to C with another vinyl-alkyd paint, A A, in which a magnesium after 1875 hours salt-fog exposure. Here also the two wash primers compare favorably as a pretreatment in the system- Areas indicated diagramatically (see Figure 11).

Complete Paint System

The systems reported in this study comprise applications of two wash primers, WP-I and WP-II, on cold rolled steel.

In Primer WP-I, magnesium silicate was used as extender (Panels 73-78 and 82-84), and in Primer WP-II, wet ground mica, meeting Military Specification MIL-M-15176 (SHIPS) was used as extender (Panels 85-90 and 94-96).

Over each of the two types of wash primers, four different red lead primers were applied. These primers were as follows:

Primer a, made according to Specification MIL-P-15929 (SHIPS) 15 Jan. 1951, applied over Primer WP-I on Panels 73, 74 and 75 and over Primer WP-II on Panels 85, 86 and 87.

Primer b, made according to Specification MIL-P-15929 (SHIPS) 15 Jan. 1951, but using wet ground mica meeting Specification MIL-M-15176 (SHIPS) and applied over Primer WP-I on Panels 76, 77 and 78 and over Primer WP-II on Panels 88, 89 and 90.

Table XIV. Visual report on the extent of rusting and blistering from test cross lines during salt-fog exposure

PANEL UMBER	AFTER 1515 HRS. RUST	BLISTERS	AFTER 2205 HRS. RUST	BLISTERS	AFTER 2755 HRS. RUST	BLISTERS	AFTER 2989 HRS. RUST	BLISTERS	AFTER 3229 HRS. RUST	BLISTERS
73	—	2.5 mm.	—	4.0 mm.	—	4.0 mm.	2.0	4.5 mm.	2.0	4.5 mm.
74	—	1.0	—	3.0	—	7.0	—	8.0	—	8.0
76	—	3.0	—	3.0	2.0	3.0	2.0	3.0	3.0	4.0
77	—	1.0	—	1.5	—	2.0	—	2.0	—	3.5
82	—	12.0	1.5	12.0	1.5	12.0	2.0	12.0	2.0	12.0
83	—	—	2.0	5.0	2.5	7.0	3.5	14.0	3.5	14.0
85	2.0	9.0	2.0	9.0	2.0	9.0	2.0	9.5	3.5	9.5
86	—	4.0	—	5.0	1.0	6.5	1.5	10.0	1.5	10.0
88	1.0	3.0	2.0	3.0	2.5	5.0	2.5	5.0	2.5	5.0
89	1.0	2.5	1.5	3.0	2.0	3.5	2.0	3.5	2.0	3.5
94	—	—	—	4.0	3.5	5.5	3.5	7.0	3.5	8.0
95	—	4.0	1.0	4.0	1.0	5.0	1.5	7.0	1.5	8.0

ote: **All figures represent distance, in millimeters, from cross lines.**

PAINT SYSTEM WITH WASH PRIMER — RED LEAD PRIMER — VINYL-ALKYD PAINT C (WITH WET GROUND MICA)
AFTER 735 HOURS SALT-FOG

WASH PRIMER WITH MAGNESIUM SILICATE: WP-I

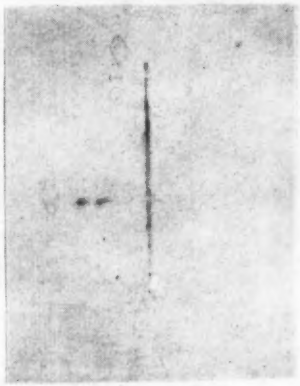
RED LEAD PRIMER A (No Extender)

Panel #73

RED LEAD PRIMER B (Wet Ground Mica)

Panel #76

RED LEAD PRIMER C (1 part Wet Ground Mica) (1 part Magnesium Silicate)



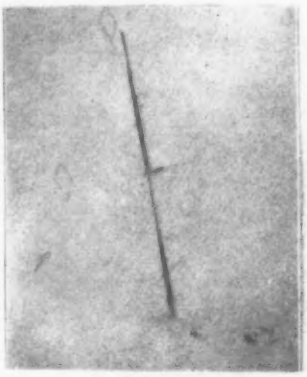
Panel #83

WASH PRIMER WITH WET GROUND MICA: WP-II

RED LEAD PRIMER A (No Extender)

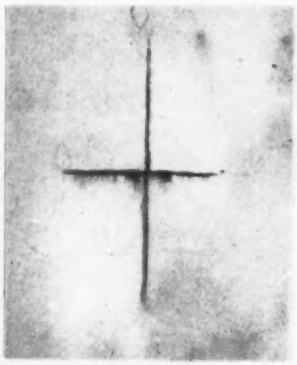
Panel #85

RED LEAD PRIMER B (Wet Ground Mica)



Panel #88

RED LEAD PRIMER C (1 part Wet Ground Mica) (1 part Magnesium Silicate)



Panel #94

Figure 9

PAINT SYSTEM WITH WASH PRIMER — RED LEAD PRIMER — VINYL-ALKYD PAINT AA (WITH MAGNESIUM SILICATE)
AFTER 1875 HOURS SALT-FOG

WASH PRIMER WITH MAGNESIUM SILICATE: WP-I

RED LEAD PRIMER A (No Extender)	RED LEAD PRIMER B (Wet Ground Mica)	RED LEAD PRIMER C (1 part Wet Ground Mica) (1 part Magnesium Silicate)

Panel #49 Panel #52 Panel #58

WASH PRIMER WITH WET GROUND MICA: WP-II

RED LEAD PRIMER A (No Extender)	RED LEAD PRIMER B (Wet Ground Mica)	RED LEAD PRIMER C (1 part Wet Ground Mica) (1 part Magnesium Silicate)

Panel #62 Panel #65 Panel #72

Figure 10

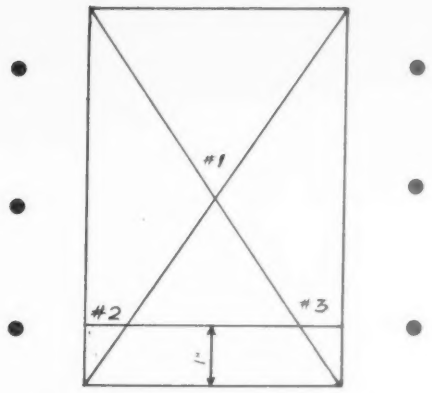


Figure 11. Areas shown diagramatically

Primer c, made according to Specification MIL-P-15929 (SHIPS) 15 Jan. 1951, but using as extender 50% wet ground mica meeting Specification MIL-M-15176 (SHIPS) and 50% magnesium silicate, and applied over Primer WP-I on Panels 82, 83 and 84 and over Primer WP-II on Panels 94, 95 and 96.

All panels were given a top coat of vinyl-alkyd paint following Military Specification MIL-P-15936 (SHIPS) 15 Jan. 1951, but using wet ground mica meeting MIL-M-1517 (SHIPS) as extender in place of non-platy extender. I composition was the same as shown in "the Vinyl-Alky Systems."

Salt-Fog Exposure Test on the Paint Systems — The evaluatio of these three-coat systems required considerably more expo sure time than the one-coat and two-coat systems in earlie chapters of this report. It was found also that after 322 hours of destructive exposure, none of these systems faile to any considerable extent. Parallel samples which had n wash primer but which had red lead primer and vinyl-alky primer on the steel surface failed earlier because of the los of adhesion.

The first question considered in this present study was comparison of the adhesion of a wash primer made accordin to Formula No. 117, Specification MIL-P-15328 (SHIPS with that of a wash primer having wet ground mica as a extender. This was studied by applying the red lead primer a, b and c and the same vinyl-alkyd mica paint on each o the two wash primers WP-I and WP-II. The results ar shown in the prints in Figures 12, 13 and 14, where the uppe row shows the system over the specification wash prime (WP-I) and the lower row shows the same system over th wash primer formulated with mica extender (WP-II).

The other question was to determine the effect of variation in the extender in the red lead vinyl primers over the tw wash primers, and as primer for the vinyl-alkyd mica paint. The results are shown in the same Figures 12 to 14 where Figure 12 shows the system using Primer a, Figure 13 shows the system using Primer b, Figure 14 shows the system using

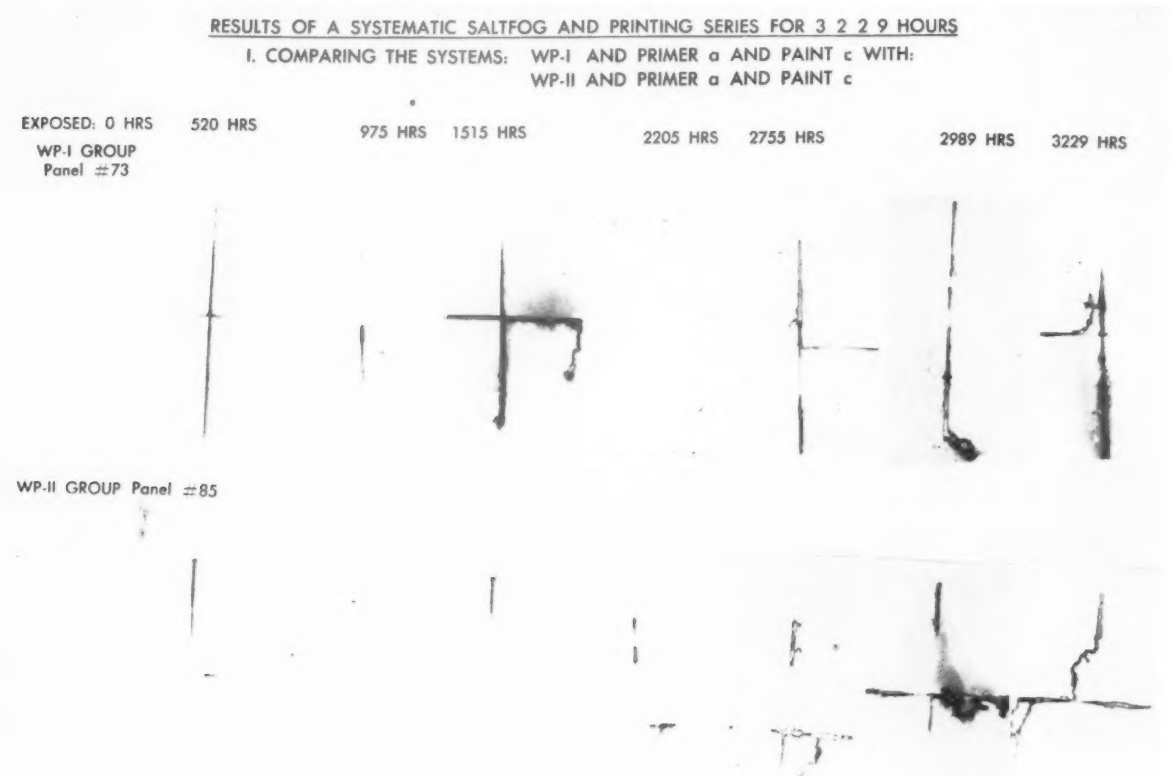

RESULTS OF A SYSTEMATIC SALTFOG AND PRINTING SERIES FOR 3 2 2 9 HOURS
I. COMPARING THE SYSTEMS: WP-I AND PRIMER a AND PAINT c WITH:
WP-II AND PRIMER a AND PAINT c
EXPOSED: 0 HRS
520 HRS
975 HRS
1515 HRS
2205 HRS
2755 HRS
2989 HRS
3229 HRS
WP-I GROUP
Panel #73
WP-II GROUP Panel #85

Figure 12

RESULTS OF A SYSTEMATIC SALTFOG AND PRINTING SERIES FOR 3 2 2 9 HOURS

II. COMPARING THE SYSTEMS: WP-I AND PRIMER b AND PAINT c WITH:
WP-II AND PRIMER b AND PAINT c

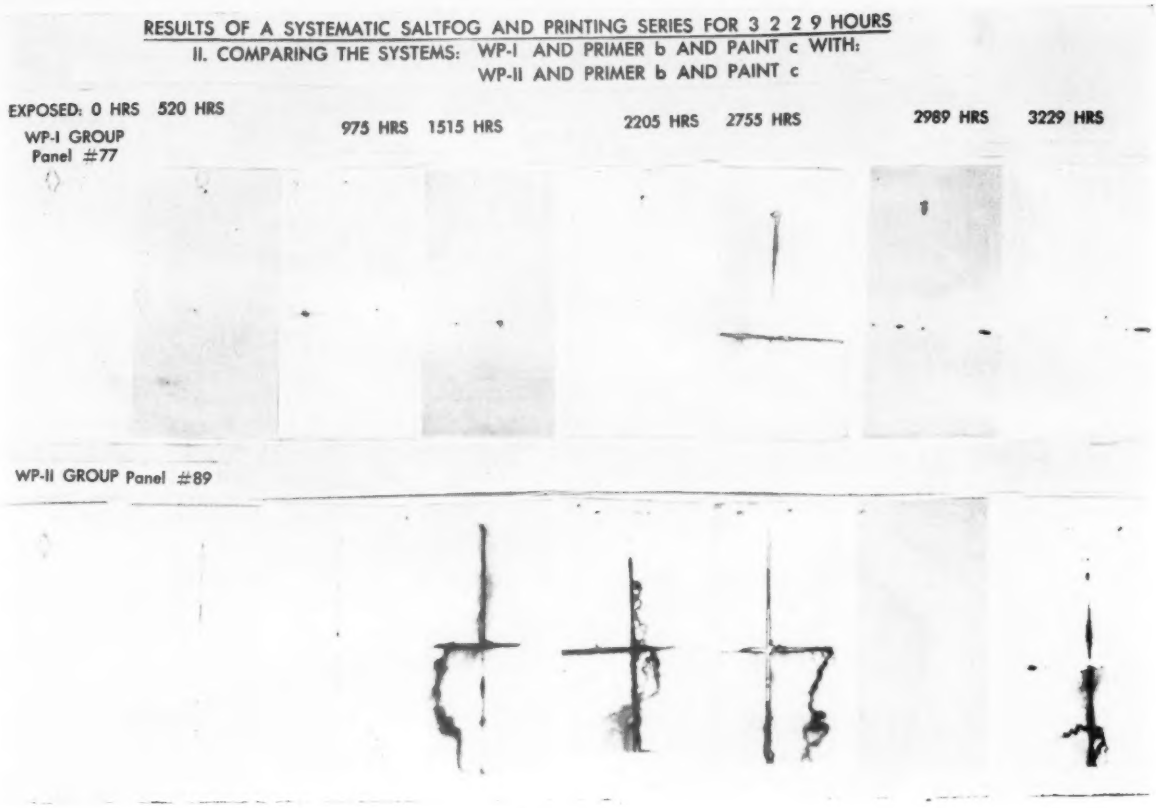


Figure 13

RESULTS OF A SYSTEMATIC SALTFOG AND PRINTING SERIES FOR 3 2 2 9 HOURS

III. COMPARING THE SYSTEMS: WP-I AND PRIMER c AND PAINT c WITH:
WP-II AND PRIMER c AND PAINT c

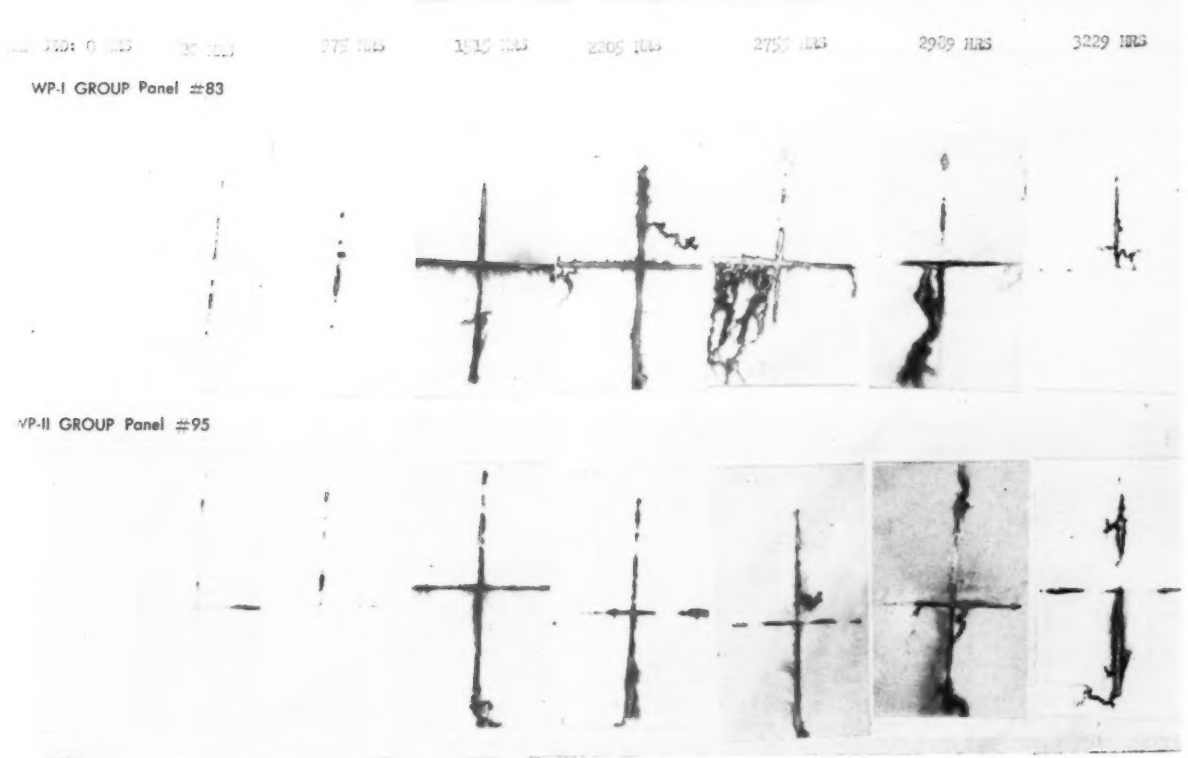


Figure 14

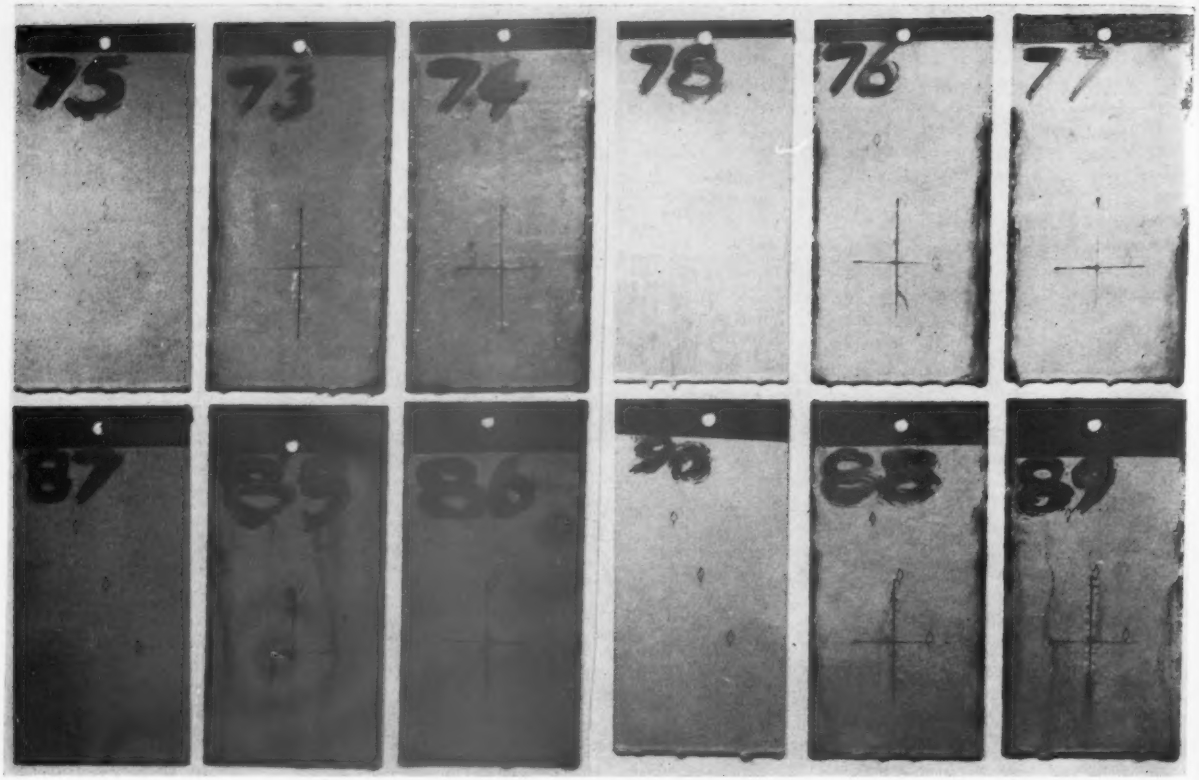


Fig. 15. Panels before salt-fog exposure and 3229 hrs. after exposure

Fig. 16. Panels before salt-fog exposure and 3229 hrs. after exposure

Primer c. The Figures show electrographic prints of the panels made at certain time intervals of exposure in a salt-fog cabinet maintained at 95°F. with a 10% solution chloride solution.

Table XIV gives visual reports which were made at the same time intervals as the prints and on the same panels as are shown in Figures 12 to 14. Inasmuch as there were only very slight visible differences between the different panels early in the exposure series, the observations of Table XIV start at 1515 hours.

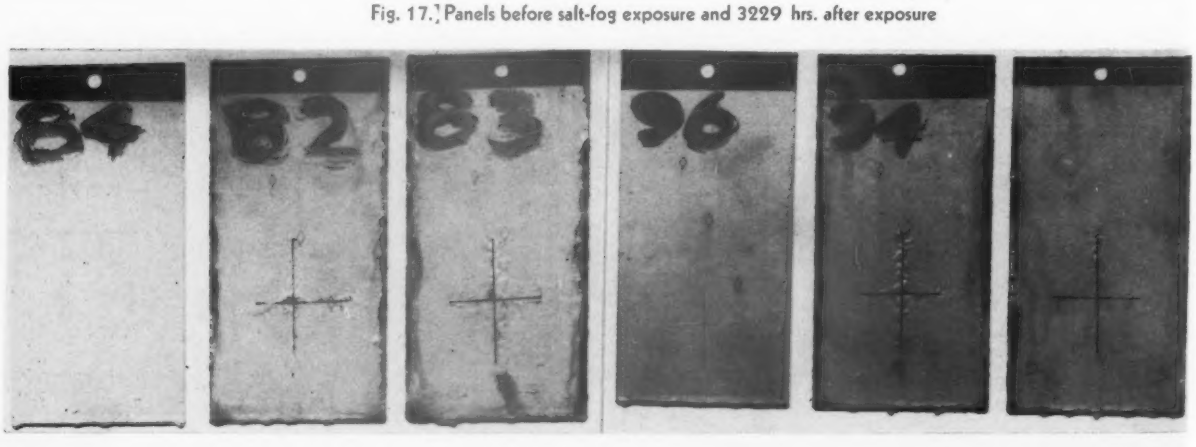
Figures 15, 16, and 17 show the various panels before the salt-fog exposure and after the 3229 hour saltfog exposure. The fact that the main surface did not show any extensive deterioration during the exposure is in agreement with the findings in the electrographic prints. It may be noted that the edges of the panels which show more of the effect of the exposure did not have any special edge-protecting coating such as is often applied. At the top of each panel, the wash primer/red lead vinyl primer system used on that panel is visible after the 3229 hour exposure.

Conclusion — On the basis of these tests, it appears evident that wet ground mica has been a very useful extender in all these systems and that further tests should be undertaken in exposure in actual marine atmosphere.

References and Acknowledgements

(1) Rohwedder, J. L. and Shanks, F. W., in *Paint and Varnish Production*, Vol. 41, No. 7 (July 1951).
(2) Platy Pigments in Paint Systems (Kronstein, MacNiece, Ward) *Paint and Varnish Production*, Vol. 42, No. 2 (February 1952)
(3) Wet Ground Mica, A summary of the results of recent research. *Paint Manufacture* (London), Vol. XXI, No. II (November 1951)
(4) Appreciation is expressed to Mr. George MacNiece for his experimental work to this first part of this development.
(5) The wet ground mica used in the tests in A was a commercial "325 mesh grade". That used in studies of Red Lead Vinyl Primer, Wash Primer, and complete systems was supplied by the *Wet Ground Mica Ass'n.*

Fig. 17. Panels before salt-fog exposure and 3229 hrs. after exposure



Purchasing Paint Supplies

SUGGESTED PLAN FOR STATE AND MUNICIPAL GOVERNMENTS

By HAROLD C. PARKS
Tredennick Paint Mfg. Co.

VARIOUS governmental agencies, both state and municipal, annually purchase large quantities of paint and varnish products for use in the maintenance of public buildings and roads. These are bought under a satisfactory general procedure which has been in vogue for years but which in many details could stand a thorough modernization. This paper is presented to suggest a plan which is simple and which will provide better results to the mutual satisfaction of both the governmental agencies and the paint producers.

It is obvious to all that paints for public use must be bought on a competitive bidding basis. This is in accordance with law in most localities and is eminently fair to all.

At the present time it is found that most of these materials are purchased by means of specifications which take several forms.

Equivalent Product Bidding

One of these requests that bids be made on an equivalent product to a brand name and color of a specific manufacturer. This is quite unfair to other producers as it is extremely difficult to obtain samples and finally to match the required product in all respects. Inadequate comparison of product and sample can lead to the substitution of an entirely different and possibly inferior product. The ultimate result is generally that other makers will maintain that their product is just as good, when actually it may be nothing like the desired material. Whenever the quantities involved are small the 'other' manufacturer is not interested in bidding as the expense is great and the profit small.

Specification Bidding

Another method often used is the specification written with the aid of a concern having friendly relations with the government officials. These are most often quite above board but have the major fault that they are written in an effort to describe the particular product of the manufacturer and none other. They are mainly incomplete and ambiguous and lead to many questions in the minds of other manufacturers with the result that a formula is written as being 'just as good' when oftentimes it may be far from the material intended.

Another fault in this type of specification is that it is most often written by individuals who are inexperienced in this type of work and who are unable to present the case in a sufficiently detailed and careful manner to make a thoroughly satisfactory specification. These are seldom, if ever, subject to review by any large number of technicians who are competent to criticize with the painstaking effort which is so essential. The ultimate result is that nearly all of these specifications are unsatisfactory to both buyer and seller.

Such specifications rarely take modern improvements into consideration and remain in effect long after the paints which they describe have ceased to be considered good practice. The exhaustive improvements in paint technology over the past few years have made many of the older paints far less durable and much more expensive than their modern counterparts.

The paint manufacturer is faced with a problem in bidding on all these different specifications of the states and municipalities. There are so many that a disproportionate amount of time is required by the laboratory and office staffs

ARRANGEMENT OF FEDERAL SPECIFICATIONS ACCORDING TO USE

Exterior paints for use on Wood and Metal Buildings of all sorts.			
Paint, Exterior, Ready Mixed	White	TT-P-102	Class A
	Tints	TT-P-102	Class B
	Reds	TT-P-31	
	Black	TT-P-61	
	Green	TT-P-71	
	Olive drab	TT-P-81	
	Yellow	TT-P-53	
	Orange	TT-P-59	
	Primer	TT-P-25	
Paint, Exterior, Concrete and Masonry	White	TT-P-24	
	Tints		
Exterior Paints for Iron and Steel — Bridges, etc.			
Prime Coat	Red Lead Base, Ready Mixed	TT-P-86	Type I, II, III, IV
	Zinc Yellow Iron Oxide Base	TT-P-57	Type I, II, III
	Zinc Dust-Zinc Oxide Base (for galvanized.)	TT-P-641	
The choice of these is dictated largely by personal preference. Subsequent coats are to be Paint, Exterior, Ready Mixed.			
Interior Paints for Walls, Woodwork, etc.			
Paint, Primer-Sealer for Plaster and Wallboard		TT-P-56	
Enamel, Undercoat, Interior	White	TT-E-543	
Enamel, Interior, Alkyd Type (Non-Yellowing)	White Tints	TT-E-506	Gloss
Enamel, Interior, Alkyd Type (Non-Yellowing)	White Tints	TT-E-508	Semi-Gloss
Paint, Interior, Non-Penetrating Flat	White	TT-P-47	
Paint, Interior, Flat Wall		TT-P-51	
Paint, Latex Base Flat		TT-P-29	
Enamels			
Floor and Deck	Brown Gray Red, etc.	TT-E-487	
Floor Paint, Rubber Base	Colors	TT-P-91	
Exterior-Interior Enamels	Colors	TT-E-489	Class A
Clear Finishes			
Floor Sealer		TT-S-176	
Interior Varnish (Floor and Trim)		TT-V-71	
Spar Varnish (Phenolic)		TT-V-119 and TT-V-121	
Shellac Varnish, White	4# Cut	TT-V-91	Type I
Orange	4# Cut	TT-V-91	Type II
Aluminum Paints			
Regular	Paste	TT-A-468	Type II Class B
	Vehicle	TT-V-81	Type I Wood Type II Metal
Chrome Finish	Paste	TT-A-468	Type II Class A
	Vehicle	TT-V-81	Type II Metal
Stain, Wood, Interior	Variety of Colors	TT-S-711	
Glazing Compound		TT-P-781	Type I
Caulking Compound		TT-C-598	
Accessories			
Colors in Oil		TT-P-381	
Drier House Paint and Flats		TT-D-651	Type I
Gloss and Semi-Gloss, Enamels, etc.		TT-D-651	Type II
Thinners for House Paint	Raw Linseed Oil	TT-O-369	
	Gum Turpentine	TT-T-801	
Other Paints	Paint Thinner	TT-T-291	
Paint Remover		TT-R-251	Type II
All colors are to be specified in terms of		TT-C-595	

in ormulating and costing. Many ma ufacturers do not care to bid on hese specifications as the work in lved is too great when coupled wi the risks of rejection for no compliance.

satisfactory specification must me t the following requirements:

1. It must completely describe the product desired. Many in existence at present give too little data to formulate properly.
2. It must be readily comprehendible to the seller. Examples can be found which contain portions that are ambiguous and not easily understood by formulators.
3. It must not allow too wide latitude in formulation. Many existing specifications can be formulated in numerous ways producing several different paints at a range of costs.
4. It must provide paints which are in accord with modern practice. Many specifications have become old and though they may have been satisfactory when written have become obsolete through improvements in the paint industry providing increased durability, more economy, etc.
5. It must provide paints which are economical to purchase and which provide satisfactory durability. A great many state specifications require paints which are much more expensive than formulations which are considered excellent practice. Cases have been found where the raw material costs are over fifty cents per gallon above those of products which will provide longer wear and better appearance.

Use of Federal Specifications

Most of the state and municipal government specifications can be criticized for failure to live up to one or more of the above requirements. This is largely due to the fact that paint products are only one small category of purchase and too great attention cannot be paid to the preparation and maintenance of the numerous specifications which are required.

The solution of the problem lies in the use of Federal Specifications. These will be found to meet all the above requirements. They are carefully written by the Bureau of Standards and other large government laboratories and checked by numerous manufacturers before release. They represent modern practice and are kept current through modifications and amendments. Their source is unimpeachable and they are subject to constant revision to conform to advancements in thinking.

If the Federal Specifications are accepted as a basis for public purchase, it is essential that they be used as correctly as possible to obtain full benefit from them. It is well to establish an overall plan for their use which will clearly state the surfaces and conditions under which they are to be used. A procedure is given in the following paragraphs which it is believed will assist in the correct use of these specifications, thus obtaining the best results from them. A listing in order of use is given in Table I.

It will be noted that all small letters and amendments have been deleted from the numbers of the specifications. It shall be a part of each request for bids that the current specification and amendment will be in force at the time of bidding.

Listing of Products

Each department should go over their painting requirements more or less in detail, setting up a complete list of products which will be necessary for the entire maintenance painting of their buildings and equipment. This list will show the types of paint products, brushes and accessories, the color schemes required and be as nearly complete as possible. Naturally, it can be amended or changed at any time in the future upon the direction of the proper authority.

When completed by each department all the results will be tabulated and condensed so that purchases can be combined wherever possible. Efforts will be made to obtain the consent of the various departments to the use of the same materials for similar needs. The adoption of some state wide color scheme, for example, might be preferable from an appearance standpoint and would enable purchasing to contract for larger quantities at one time thus obtaining lower prices.

This list of paint requirements when completed will then be studied and specifications selected from among the Federal Specifications which will most adequately cover the products needed. The listing above will facilitate the selection.

A complete abstract of all the Federal Specifications pertaining to paint and varnish products can be obtained from the *National Paint, Varnish and Lacquer Association, Inc., Washington, D. C.* Copies of all the Federal Specifications can be obtained from the *Superintendent of Documents, Washington, D. C.*

Orders for paint products emanating from the various departments will be checked by Purchasing against the previously prepared lists. Requests will be combined as much as possible with those of other departments and the requests issued in the usual manner. It is often found to be helpful if these requests read for a number of gallons to be delivered to a variety of addresses.

Attaining Success

Whenever a laboratory is available, samples should be forwarded to them to be checked for conformity to the specifications. Acceptance or rejection should be based upon their reports.

The ultimate success of a paint job depends upon several factors:

1. The selection of the proper paint. (Outlined above)
2. The preparation of the surface.
3. The proper application, including the thinning, the number of coats and all the details of good painting practice.

To cover the last of these factors, a manual of painting should be prepared in mimeographed form for the guidance of various supervisors charged with directing the work which in many cases is done by unskilled painters. This manual should outline the various surfaces which are to be painted from time to time and completely describe the procedures to be followed in both new and repaint

(*Turn to page 77*)

RCI's TECHNICAL SERVICE

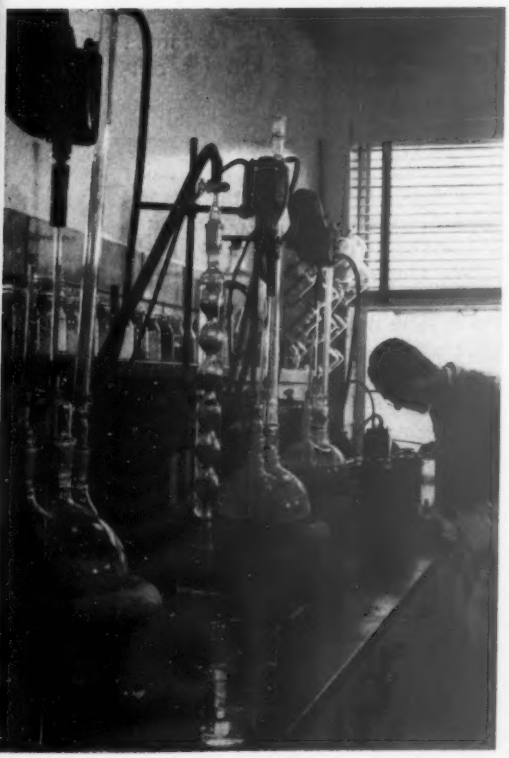
SINCE 1925 the Reichhold operation has grown from a Detroit-suburb garage equipped with a few varnish kettles to a 29-plant international chemical giant. One of the most important factors contributing to this growth during the past 28 years has been service. A top executive of the firm maintains: "Our company is the largest of its kind in the world, not because we make better products, but because we know how to use these products, and also know the people who use them, and we have found no substitute for personal contact."

RCI manufactures no products for retail. Everything made in its plants is used either in the manufacturing of synthetic resins or as raw materials in other manufacturing plants. As a result, RCI technologists must be familiar with the end-products of the business, that is, the products made from the raw materials which the company produces.

Reichhold has ten plants strategically located throughout the United States. Each plant is equipped with a laboratory staffed by experts who are in a position to render prompt technical service to customers and prospective customers. "Our customers' problems are our problems" is an RCI slogan.

The accompanying photos illustrate some of the research work and testing methods being carried on at the Detroit plant—work which will result in new and improved raw materials or a satisfactory solution to the customers' problems.

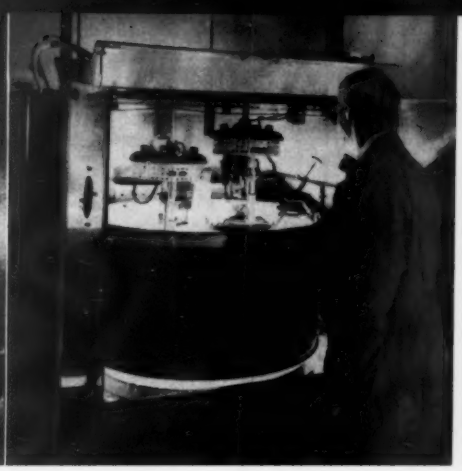
Urea formaldehyde resins are cooked in laboratory. Research has led to the improvement of present products and discovery of new ones.



Sample strips of sprayed metal are placed into oven to bake dry in sales service laboratory. Evaluation is an important function of this lab.

Infra-red baking. Sample panels baked under infra-red ray lamp at sales service laboratory.

Resin sample is taken from the cooking kettle. Sample is rushed to production lab for test.



Ultra-violet test. Here, paint samples are tested for resistance against ultra-violet rays.

Painted strips are tested for gloss. Customers often send their finished products to be tested.

Paint samples are made on rolling mill in the sales service laboratory at the Detroit plant.

Here, hardness test is made on a coated panel. This test is done in constant temperature room.

Laboratory technician is shown making up test sample batch of paint using RCI raw materials.

For evaluation purposes, these sample paints are cast on glass in constant temperature lab.

Panels are sprayed with newly developed paint. Film property tests will then be made.

Maleic Anhydride Symposium

A SYMPOSIUM on maleic anhydride was held at the March meeting of Vehicle Manufacturers Group of the New York Paint, Varnish and Lacquer Association at the Hotel Brevoort.

Three speakers participated in this symposium. They were:

Lawrence H. Flett, Director, New Products Div., National Aniline Div., Allied Chemical & Dye Corp., discussed the chemistry of maleic anhydride pointing out some of the basic chemical reactions which takes place with this versatile chemical.

Dr. William Howlett Gardner, also of the New Products Div., National Aniline Div., Allied Chemical & Dye Corp. described the chemistry of copolymer alkyds and polyester type resins based on maleic anhydride.

Robert L. Terrill of Spencer Kellogg & Sons spoke on the use of maleic anhydride in upgrading drying oils and the effect of these oils on paint vehicles.

Lawrence Flett

Maleic anhydride, which has been commercially available for about 30 years, first came into prominence in the coatings field at the outbreak of war between Japan and China. One of the first effects of the Japanese hostilities was to shut off the supply of China wood oil so necessary for the production of the modern, hard, glossy, quick-drying coating materials. Fortunately, it was found that maleic anhydride could be added to relatively slow-drying oils to give useful substitutes for the China wood oil. Indeed, the treated oils had some worthwhile advantages; for example, they were less prone to yellowing with age. The use of resins in oils was nothing new — the alkyds had been known and used for some time. But this was a new kind of vehicle, not just a resin in oil but a reactive resin subject to oxidation and drying.

Maleic anhydride has been introduced into paint vehicles in many different ways. As a chemical, it is a bundle of reactivity. There is not an atom or group in its structure which cannot be reacted. As a matter of fact, if proper conditions are chosen, almost any atom can be reacted to the exclusion of the other atoms. The double bond of maleic anhydride is most unusual for its activity. As a conjugated double bond, it could have been expected that it would be reactive, and as a matter of fact, it undergoes most of the known reactions for a double bonded compound. It reacts readily with dienes, often advantageously at room temperature. Hydrogen sulfide can be added at sub-zero temperatures. Maleic acid and its derivativeswill take alkyl amines and bisulfite almost quantitatively from water solution.

Not only does the maleic anhydride have remarkable chemical activity, but it serves as a spark plug for many other reactions. Those who like to speculate on free radicals will find plenty to interest them in reactions involving maleic anhydride.

This great reactivity on the part of maleic and the isomeric fumaric acid has been invaluable in the production of many types of resins, particularly the polyester resins. Nevertheless, like all products given to active chemical changes, its reactions need careful control. Its utility might be compared to that of electricity, which at regulated cycles and set voltage has become the invaluable servant of our daily life. Nevertheless, when it runs wild, it can become a source of serious damage. The maleic anhydride is capable of reacting in many ways. Some reactions are beneficial, some are damaging. For

timately, these reactions take place under a wide variety of conditions, some slowly at room temperature, others require high temperatures. Some reactions require water or solvents. Some reactions give off water, and maleic acid reacts with water to form both fumaric acid and malic acid.

In short, the chemistry of maleic anhydride confirms what the resin chemist always knew; i.e., when it is improperly reacted, it is the source of many headaches, but properly used, it does introduce very desirable properties in finished surface coatings.

Dr. William H. Gardner

Maleic anhydride has found considerable use in the production of various resins for enamel vehicles. For example, small amounts of this versatile chemical are used in the production of phthalic type alkyds, to speed the drying characteristics of these resins. In the non-phthalic types, it is employed as an adduct of rosin, terpenes or cyclopentadiene. Glycerine or alcohols of higher functionality are used with these resins for esterification, while fatty acids or rosin are employed as modifying agents.

An interesting development in this field is copolymers made from unsaturated maleic-glycol alkyds and vinyl compounds, such as styrene. As coating raw materials, these copolymer resins have the combined properties of both maleic alkyds and vinyl polymers. The alkyds used in the synthesis of these resins have a high content of maleic or one of its reactive derivatives. Glycols rather than glycerine are preferred in the production of these alkyds in order to avoid gelation.

Resins with varying properties can be produced by incorporating fatty acids, phthalic anhydride and other dibasic acids in the unsaturated alkyd, and by varying the relative amounts of styrene used for copolymerization. In this connection, the adduct of cyclopentadiene and maleic anhydride may be substituted in whole or in part for maleic anhydride. One must be careful as to the type of adduct to use. For example, the furan adduct is much too unstable at elevated temperatures, while the cyclohexadiene adduct (work of McCullough, Wynstra and Waters) fails to esterify readily.

Recently, tetrahydrophthalic anhydride has gained the interest of resin and vehicle manufacturers. It is now being used in place of phthalic anhydride as a modifying agent. One of the outstanding features of tetrahydrophthalic anhydride is that it gives better color than phthalic anhydride even with unsaturated alkyds.

Polyester-styrene copolymer resins are now available as oxidizing and non-oxdizing types. These resins are cut in aromatic or mixed hydrocarbon solvents and may be modified by blending with hard rosin phenolics, amine-type resins, carnauba wax and silicone oils. Properties claimed with these copolymers are fast drying, good color, high gloss, good solvent release, sprayability and dip-tank stability. To prevent skinning, antioxidant of the antiskinning type should be added to the enamel.

An interesting copolymer system is comprised of unsaturated maleic alkyds dissolved in liquid styrene monomer. In this particular case, the styrene has a dual role. It is both a solvent and a reactant. With the aid of peroxide catalysts and promoters such as cobalt naphthenate and tertiary amines, the styrene reacts readily with the unsaturated alkyd to form a cured film.

The unsaturated alkyd used in this copolymer is produced from maleic anhydride and glycols and other dibasic anhydrides as modifying agents. One of the drawbacks encountered with this system is that alkyds of this type may yield very brittle coatings, especially when they are completely reacted with the styrene. This condition may be alleviated by employing longer chain glycols such as propylene glycol in the syntheses of the unsaturated alkyd or adding non-reactive dibasic acid groups such as those from phthalic anhydride or succinic anhydride.

Coatings based on such copolymers have been found especially suitable in the restoration of old wooden boats. In this application, the paint and the decayed portions of the surface are removed and the wood is filled with a corking compound. The base wood is then coated with a clear of the above polyester system and then covered with a glass fabric. This is then followed by two thick coats of a colored product, forming a shell which encases the wooden structure on all sides. The coating may be applied by brush, roller or spray. After the coating is dry, it may be buffed to a smooth finish, which exhibits good impact resistance, toughness and scratch resistance. It is also claimed that this coating is not penetrated by barnacles or other marine growth.

Robert L. Terrill

Maleic anhydride is the most important single chemical which has been used in the manufacture of improved drying oils. Probably the two outstanding examples are its use in upgrading soybean oil for a linseed oil replacement and in upgrading linseed oil as a replacement for harder oils such as tung and oiticica.

The chemistry of the addition of maleic anhydride to conjugated and non-conjugated oils is quite different and of course products of different natures result. It is fairly well established that maleic anhydride adds to non-conjugated fatty acids to yield an alkenyl succinic acid derivative, whereas addition to conjugated fatty acids results in a Diels-Alder adduct. Particularly in the first instance the functionality is considerably increased, since only one double bond is lost and the reactive maleic double bond remains to take place in polymerization and drying reactions; also the carboxyl functionality is increased toward condensation or esterification reactions.

Technologically speaking, the preparation of maleic treated oils involves generally one of two general approaches. The maleic anhydride addition reaction may first be carried out followed by esterification with a polyhydric alcohol, usually glycerol or PE. Alternately, the alkyd philosophy may be employed — alcoholysis followed by reaction with maleic anhydride. Properties of the resulting products are similar but are also influenced by technique so can not be easily generalized.

The largest single use of maleic

(Turn to page 78)

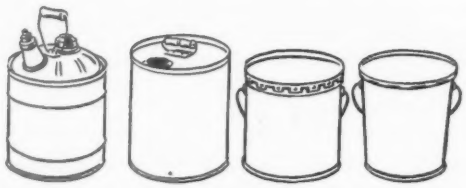
Continental's artists translate ideas into packages that sell

MAY WE TAILOR A STEEL CONTAINER FOR YOU?

To Continental people, your bulk products are personalities. And we do our best to hand-tailor containers that exactly fit their needs.

As one of the few steel container manufacturers who also make tin cans, we have an experience in lithographing-on-metal that's hard to equal. Our artists are masters at adapting designs to look well on pails, drums and handi cans of varying sizes and shapes. Our platemakers and pressmen have the most modern of equipment with which to work.

No two steel container users have exactly the same problems. From long experience we have built up a list of package services that our customers have found helpful. We'd like a chance to hand-tailor these services to *your* particular requirements.



CONTINENTAL CAN COMPANY

Continental Can Building, 100 E. 42nd Street, New York 17, N. Y.

EASTERN DIVISION
100 E. 42nd St., New York 17

CENTRAL DIVISION
135 So. La Salle St., Chicago 3

PACIFIC DIVISION
Russ Building, San Francisco 4

NEWS DIGEST

Winners of A-D-M's 1952 National Fish Derby Announced

Champion fishermen of the paint, varnish and lacquer industries have been named by the Archer-Daniels-Midland Company, Minneapolis, Minn., sponsors of the 1952 ADM national fish derby.

The three grand champion awards were won by J. Howard Houston, Pope & Grey, Inc., Allwood, Clifton, New Jersey, Clarke A. Raver, Dean & Barry Company, Columbus, Ohio, and Felix J. Dugas, Holrite Paints, Inc., Baton Rouge, La.

Each received a Hydro-drive Champion outboard motor or a Polaroid Land camera.

Contest judges were General Joseph E. Battley, president, National Paint, Varnish and Lacquer Association, Hugh Grey, editor of Field and Stream, and Dr. Samuel Eddy, Professor of Zoology at the University of Minnesota.

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1954 West Coast Production Club Symposium Scheduled Mar. 25-27

Frank Gentes, of the Dow Chemical Company, has been appointed chairman of the Technical Program Committee for the 1954 Symposium of the Pacific Coast Paint and Varnish Production Clubs, whose program date has been changed from March 17-19, to March 25-27.

Mr. Gentes succeeds Charles Thurmond who has been transferred to the Los Angeles area.

The date for the Pacific Coast Symposium was changed in order not to conflict with the Southern Production Club meeting which will be held in Biloxi.

•

Suspend Castor Oil Restrictions; Action Retroactive to April 1

Restrictions on the use of castor oil have been suspended, effective retroactively to April 1, the U. S. Department of Agriculture announced recently.

The Department said that increased availability of the oil made possible the move, recommended by the industrial oils advisory committee.

Suspension of the restrictions, Defense food Order No. 1, permits unlimited use and inventory holdings of castor oil, and suspends the requirements for submitting certificates to the Department in connection with receipts of castor oil.

35-Foot Trailer, Housing Lacquer Display Exhibit, To Tour Country

A 35-foot trailer, custom-built by the Hercules Powder Company as a traveling display of their latest developments in lacquers, will tour the country, according to a recent company announcement.

The "Mobile Lacquer Information Center," exhibited for the first time in New York City this month, is equipped with facilities for showing motion pictures, lacquer spray equipment, and has a conference room. The spray equipment will be moved into plants for on-the-spot demonstrations.

Display panels in the trailer describe Hercules' latest products, including primers, finishing systems, and floor finishes.

Other panels illustrate the types of coatings which can be formulated with the firm's chlorinated rubber, paper lacquers, and ethyl cellulose specialty lacquers.

The "Mobile Lacquer Information Center" is scheduled to visit lacquer plants throughout the country and in Mexico and Canada. A representative from Hercules' lacquer promotion group and Hercules' Experiment Station will travel with the exhibit.

Mixing Equipment Co. Erects 70,000 Gallon Fluid Test Tank

A 70,000 gallon test tank, to aid in the accumulation of accurate data on blending of fluids in big tanks, has been erected by the Mixing Equipment Company, Inc., Rochester, N. Y.

Quantitative studies on blending operations in the 20-foot diameter, 30-foot high tank provide data on single and multiple installations of side entering mixers, location of multiple units, and angle of entrance of mixers. In addition, comparisons between mechanical mixers, air agitation and liquid jets can be made.

The tank is so constructed that power measurements on side entering impellers can be taken with accurate instrumentation on multiple mixer installations totaling up to 100 H. P. and on single mixers up to 50 H. P.

According to the firm, the tank permits realistic testing of new-design shaft seals, stuffing boxes, mountings and whether effects, under field conditions.

The tank is the newest addition to the company's research-development laboratory.

Farnow Varnish Works Appoint Sales Agent for Three States

The Farnow Varnish Works of New York City, have announced the appointment of Wyrough and Loser as sales agent for their line of vehicles and alkyd resins in New Jersey, Pennsylvania, Delaware, and Maryland.

Wyrough and Loser maintain offices at 801 Broad Street, Trenton, New Jersey.

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Linseed Firm Increases Flaxseed Storage by 2,500,000 Bushels

Expanded storage facilities at the Minnesota Linseed Oil Company's Fridley plant is expected to increase the flaxseed storage capacity from one million to two million, five hundred thousand bushels.

Construction of the storage elevators, begun recently, will also mean an increase in the plant's unloading capacity from 20 cars a day to 40.

When the Fridley plant opened in January of 1949, the annual flaxseed crushing capacity was 3 million bushels. During recent years, capacity has been increased to five million bushels.

ASTM Committee D-1 Holds Spring Meeting

The Spring Meeting of Committee D-1 on Paint, Varnish, Lacquer, and Related Materials was highlighted by an illustrated talk on *The Production Man's View of the Technical Man's Responsibility*, by N. P. Beckwith, vice-president and technical director of Rinshed-Mason Company.

Mr. Beckwith discussed the various ways in which technical personnel are in contact with production personnel, and considered the qualities which are most desirable to promote cooperation, understanding and productive work between the two groups.

Mr. Euverard, Chairman of the Papers Subcommittee, who arranged the talk, announced that at the next meeting of Committee D-1 in June there would be a supplementary talk by another author presenting management's view of the technical man's responsibility.

Over a three-day period, March 2 — 4, there were 70 meetings of D-1 subcommittees and working groups in addition to the main committee meeting. The meeting of the main Committee was attended by 120 members and visitors. These meetings were held at Detroit, Michigan, during ASTM Committee Week.

The programs of work of the technical subcommittees have resulted in recommendations for the adoption of a number of new tentative methods of test and specifications which will be voted on by Committee D-1 in its annual June report. Among these are new proposed tentative specifications for high-gravity glycerine and also new methods of sampling and testing high-gravity glycerine. Revisions of the Methods of Chemical Analysis of White Pigments (D 34 — 51T) were submitted.

Also ready for vote of Committee D-1 are a tentative method of test for non-volatile content of resin solutions, and tentative revisions of the methods of test for drying time, gloss, non-volatile matter and consistency of nitrocellulose clear lacquers and lacquer enamels (D 333 — 40). Other new methods of test recommended for publication as tentative are for color difference measurements with the Hunter Multipurpose Reflectometer, and also a consolidated gloss method which is intended to replace the present Standard Method of Test for 60-Degree Specular Gloss (D 523 — 51).

Devoe & Raynolds plant managers from six states met recently at a three day conference in Louisville, Ky., to discuss such problems as Plant Costs, Traffic, Personnel and Labor Relations. The problems were on a national as well as regional basis. The plant men also toured the Jones Dabney Company plant and laboratory, and the Devoe plant's laboratory and art department. Seated, left to right: Palmer Kalajian, B. W. Dysart, Basil Howell, E. F. Musterman, Geo. Turner, Jack MacCallum, and William Tonks. Standing, left to right: Tom Thompson, Mike Eby, Ken Miller, Walt Plumb, Ken Sipe, Roy Gunter, John Winzenried, John Benda, Ken Adams, Lyle Hoskin, and Ed Ganoe.

Final work is being done on a number of other proposed new test methods which include fineness of grind of printing inks, a method for determining the settling of traffic paints during storage, a method of test for no-dirt-retention-time of traffic paints, and two different methods for analysis of phthalic anhydride which are applicable in the presence of other interfering dibasic acids.

Progress was reported in the preparation of new proposed tentative methods covering photographic standards for classifying ferrous surfaces for painting, abrasion resistance test of varnishes, method of test for hiding power and a procedure for sampling drying oils and related materials.

A method for determining total unsaturation by hydrogenation, specifications for safflower oil, the drop-test and the contact angle test for cleanliness of steel panels, new photographic standards of blistering, and the application of the foil method for determination of non-volatile content of heat-sensitive resins are being studied. Work on oil absorption, consistency of pastes, adhesion and hardness, water vapor permeability, flow properties and fire retardency of paints, has also progressed.

The committee also received reports of progress on the preparation of revised specifications for copper phthalocyanine to include flocculation and crystallization types of pigments, methods of test for drying time and specific gravity of printing inks, the revision of the present methods of sampling and analysis of shellac (D 29 — 40), determination of cold alcohol insoluble matter, polymerized bodies and color of lac resins, and revision of the method for analysis of dry mercuric oxide.

Some minor changes were recommended in the Proposed Method of Test for Flash Point of Volatile Solvents by the Tag Open-Cup Apparatus which will be again published as information. This proposed method is based on the Manufacturing Chemists' Association Draft for Flash Point Determination of Liquids for Classification under ICC Regulations by Tagliabue Open Cup. A round-robin interlaboratory test program is under way on the development of approved equipment for determining the open cup flash point of viscose materials.

A number of new investigations have been started which includes a study of acid numbers of varnishes, the use of the Tag open-cup method for flash point with nonhydrocarbon solvents which flash in the range of 20 to 80 F., development of a method for measuring the gloss of clear finishes over wood, preparation of specifications for fatty acids and revision of the Standard Specifications for Oiticica Oil (D 601 — 46), development of a moisture check resistance test for wood lacquers, the measurement of dry film thickness of coatings applied to non-magnetic bases, and specific gravity of paint and paint materials.

•

Innis, Speiden Moves New York Offices to 420 Lexington Ave.

Innis, Speiden& Company, Inc., has transferred their New York City sales and executive offices to 420 Lexington Ave., site of their subsidiary firm, Berkshire Chemicals, Inc.

J. B. Wiesel

J. B. Wiesel, Lacquer Industry Pioneer, Retires from Hercules

J. Boiseau Wiesel, of Westover Hills, Mass., assistant to the general manager of Hercules Powder Company's Cellulose Products Department, has retired after 37 years with the firm.

A pioneer in the American lacquer industry, Mr. Wiesel has been an active participant in the National Paint, Varnish and Lacquer Association for many years and was founder of the present lacquer Committee of the Association.

Mr. Wiesel's educational background includes an A. B., and M. A. degree from Loyola College, Baltimore, Maryland, and three years of postgraduate studies in chemistry and physics at Johns Hopkins University.

After teaching chemistry and physics for three years in Baltimore, Mr. Wiesel joined Hercules Powder as a chemist in Curtis Bay, Md. He was transferred to the firm's Parlin, N. J., plant a few years later. At the time, the Parlin plant produced nitrocellulose and smokeless powder.

In 1930, Mr. Wiesel was named director of sales for the Cellulose Products Department at Parlin, the plant having been converted to the production of cellulose chemicals, used for plastics and the lacquer industry.

He was advisor to the chief of the Protective and Technical Coating Section of the War Production Board from 1940 to 1942.

Mr. Wiesel was named assistant to the general manager of the Cellulose Products Department in 1948.

A frequent lecturer before technical groups in the coating industry, he also originated and developed the "Lacquer Cooperative Exhibit", an annual feature at the conventions of the National Paint, Varnish and Lacquer Association.

Last year, in the first cooperative venture of its kind in the industry, 23 raw material, solvent and equipment firms sponsored the Exhibit.

Mr. Weisel's activities also include membership in the American Institute of Chemical Engineers and writing for paint and varnish publications.

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Symposium on Gloss At ASTM 1953 Spring Meeting in Detroit

The 1953 Spring Meeting of the American Society for Testing Materials, held in Detroit, Mich., featured a *Symposium on Gloss* sponsored by ASTM Committee E-12 on Appearance. The Symposium was held on March 4 at morning and afternoon sessions.

The morning session was confined to an illustrated lecture by Ralph M. Evans, Control Department head, Eastman Kodak Co., on *Surfaces as Seen and Photographed.*

The afternoon session consisted of two papers; one by Harry K. Hammond, III, Physicist, National Bureau of Standards and Daniel Smith, Physicist, Research Laboratories, Interchemical Corp., on *The Physics of Surface Reflection*; the other by Richard S. Hunter, Director, Hunter Associates Laboratory, on *Gloss and Its Measurement.*

These lectures were then followed by an open panel discussion under the chairmanship of Dr. Deane B. Judd, Head of Colorimetry Unit, National Bureau of Standards.

Abstracts of the three lectures presented at this Symposium follow:

Surfaces as Seen and Photographed, By Ralph M. Evans

This lecture, which was illustrated by 100 color slides, explained the following five basic factors involved in photographing the appearance of the object:

1. *The Surface*: The surface, in this case, is the subject of the problem. It must be decided at the outset what unique property of the surface it is wished to illustrate before proceeding. It is not enough to say we wish an item photographed, because there are many degrees of magnification, many effects possible by lighting, and many angles from which the object may be viewed.
2. *The Appearance of the Surface*: An observer from long experience has come to recognize surfaces which have many highlights of reflected lights as having a glossy surface and surfaces which have no highlights of reflection as matte. Those appearances which are dependent upon the experience of the observer must not be violated, otherwise the observer will be led to the wrong conclusion.
3. *The Appearance of the Photograph*: Aside from the usual considerations of good composition, careful attention must be paid to the observer comprehension of the photograph. The photograph should be essentially simple in content, the idea being to present only one central point per photograph, rather than to have a clutter of objects which would lead to confusion on the part of the viewer.
4. *The Appearance in the Photograph*: A photograph of an unfamiliar subject, or of a familiar subject in an unfamiliar manner, must contain some clue to the viewer so as to make the photograph readily comprehensible. In many instances further clarification of the photograph is necessary to provide a comparison between a well-known object and the one under consideration. This method of establishing clues for the observer should not be underestimated, for the lack of clues or recognizable points may lead the observer of the photograph to an entirely erroneous conclusion.

In conclusion, Evans stated that no matter what the problem of surface illustration might be, if the desired results are clearly stated, a competent photographer can successfully obtain the desired photographs.

5. *The Photographic Process*: Before photographing an object due consideration must be given to the type of photograph most suited to the particular subject at hand. The photographer has available both color, and black and white film, moving and still pictures, and single and three dimensional representations.

The advantages of color and motion pictures are obvious, but those of three dimension demand closer inspection. Such surfaces which exhibit luster, sheen, iridescence and an appearance of depth cannot be successfully illustrated by any type of single dimension representation.

The Physics of Surface Reflection, By Harry K. Hammond, III and Daniel Smith

The physical optical laws which describe the reflectance of light at a metallic or non-metallic boundary are usually discussed for rays incident upon plane boundaries. There is no limitation, however, on their incidence to rough surfaces which may be considered to be constructed from randomly oriented specularly reflecting facets. It is then primarily a matter of obtaining the correct weighted-average-reflectance for each angle of reflectance from a rough surface to determine the characteristics which may be responsible for any shiny appearance. It would seem that a single basic method for gloss measurement for all materials is within the realm of possibility. This is based on the fore-going considerations which indicate that the pertinent differences between materials are those of degree and not kind.

Gloss and Its Measurement, By Richard S. Hunter

Mr. Hunter reviewed his paper which is published in ASTM Bulletin, No. 186, December, 1952. He explained that any gloss scale should be psychophysical; that is, it should be a special physical scale yielding numbers corresponding to visual estimates of gloss. Mr. Hunter then discussed in some detail each of four reasons why the gloss-measurement requirements of industry are leading to a multiplicity rather than a unification of gloss scales. These are:

1. Complexity of the physical situations responsible for gloss,
2. The variety of visual clues used in the recognition of gloss,
3. The lack of additivity (as in color) or other means of synthetically matching gloss stimuli,
4. The variability with class of specimens of the geometric conditions best suited for their gloss measurement.

He concluded that the science of glossimetry may be expected to develop a series of testing procedures, each applicable to specific types of object surfaces.

The paper by Mr. Hunter has been published in ASTM Bulletin, No. 186, December, 1952. The other two talks are not to be published.

•

Brazil Oiticica Appoints Sales Agent for San Francisco Area

Brazil Oiticica, Inc., New York, N. Y., has announced the appointment of R. E. Flatow & Company, 244 California St., San Francisco, as sales agents for the San Francisco Bay Area.

Flatow & Company will co-ordinate their activities with R. J. Roealing & Company of San Francisco, in promoting Brazil Oiticica's Cicoil, a raw liquid oil.

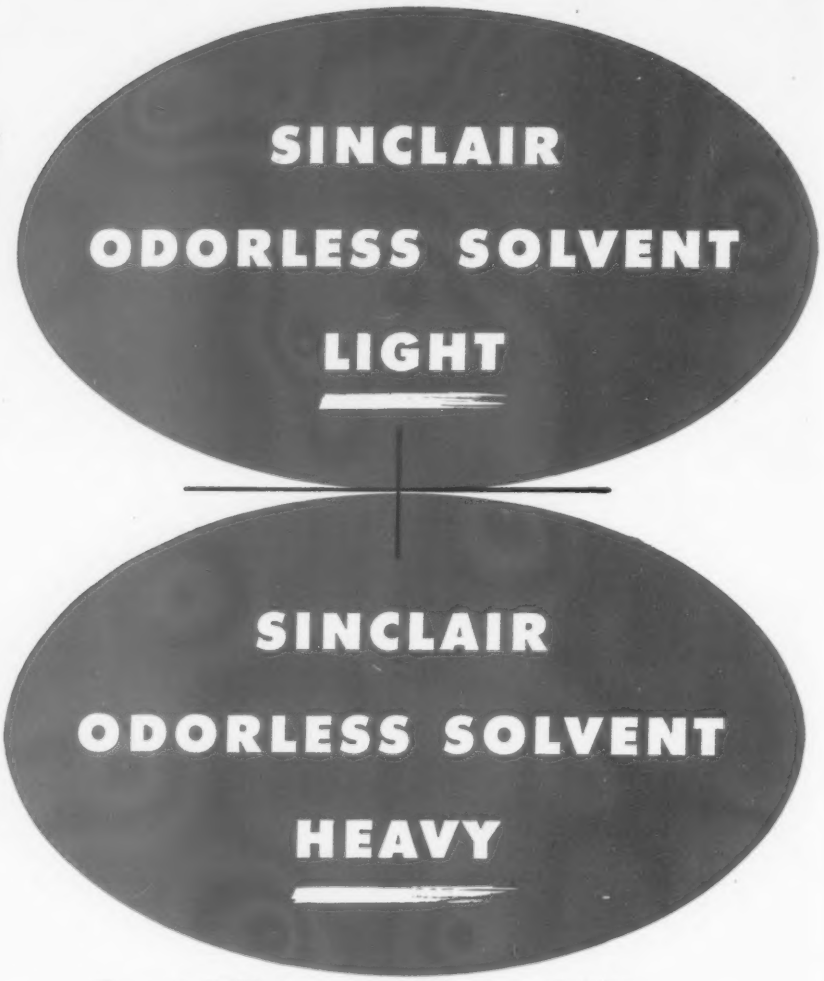
•

Walter E. Blair, Assistant to President of Solvay Process, Dies

Walter E. Blair, assistant to the president of the Solvay Process Division, Allied Chemical & Dye Corporation, died suddenly on March 23, while vacationing in Sarasota, Florida.

Associated with Solvay for most of his business career, Mr. Blair had been director of sales, and manager of the product development department before being appointed assistant to the president of Solvay in 1952.

NOW A TEAM of Truly Odorless Solvents!



SINCLAIR ODORLESS SOLVENT LIGHT

Distillation Range

IBP.....350°F EP.....400°F

Kauri-Butanol Value 26

SINCLAIR ODORLESS SOLVENT HEAVY

Distillation Range

IBP.....375°F EP.....465°F

Kauri-Butanol Value.....25

To meet distillation range requirements of paint manufacturers, Sinclair offers not one, but two types of odorless mineral spirits . . . Sinclair Odorless Solvent Light (350-400°F.) and Sinclair Odorless Solvent Heavy (375-465°F.). These new Sinclair Products are made from carefully selected petroleum fractions to insure the uniformity, stability and superior quality demanded by manufacturers of odorless paints for interior decoration.

For samples, prices and complete information on Sinclair Odorless Solvents, write or call—

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(Subsidiary of Sinclair Oil Corporation)

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AZO ZZZ-22

A high oil absorption Zinc Oxide having large Acicular Particles which gives heavy body

AZO acicular lead-free zinc oxide is a superior pigment available in a wide range of oil absorptions

medium

AZO ZZZ-11

A medium oil absorption Acicular Zinc Oxide imparting exceptional weathering qualities to exterior paints

low

AZO ZZZ-33

A definitely Acicular type with a lower oil absorption, but chemically identical with AZO ZZZ-11 and AZO ZZZ-22

The extra durability, the finer weathering qualities that Acicular Zinc Oxide gives to paint can be obtained with AZO Acicular Zinc Oxides available in a wide range of oil absorptions to meet your requirements

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Color
Viscosity
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Flash point (T.C.C.)
Moisture content
Acid value
Miscibility with raw linseed oil
Miscibility with mineral spirits
Benzene insoluble content
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Material released for shipment complies with the strict tolerances necessary for top quality.

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Drying Salts:
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BRANCHES IN PRINCIPAL CITIES

Japanese Titanium Dioxide Production To Begin in 1953

Initial production of several grades of titanium dioxide will begin in Japan late in 1953, according to a joint announcement by Eijico Fujise, President of Nippon Titanium Company, Inc., of Japan, and Robert S. Aries, President of R. S. Aries & Associates, 400 Madison Ave., New York 17, N. Y.

The plant facilities, now under construction, will have a capacity of 150 tons per month by the end of 1943.

According to Mr. Fujise, expansion is planned in 1954 to double the estimated production.

Titanium dioxide is an important white pigment used in paints, rubber, paper and many other products.

The Nippon Titanium Company, Inc., and R. S. Aries and Associates, have an aggreement providing for the participation of the Aries organization by stock ownership in the Japanese firm and for Aries' continuing engineering services in expanding production.

•

Two Million Pound Tung Oil Import Quota Set Until July 1

A two million pound quota, plus what is now in transit, has been set on Tung oil imports until the end of June, the United States Agriculture Department announced recently.

The quota is meant "to prevent interference with the orderly storing or marketing of domestically produced oil," the USDA said.

Since last September, domestic prices of tung oil have declined substantially and as a result the Department has placed it under a loan and purchase program.

The Paint, Varnish and Lacquer Association has strongly criticized the establishment of import restrictions on tung oil.

In a recent statement, the Association said, "There is no justifiable or statistical basis for the limitation of tung oil imports as advocated by domestic producers.

•

Robert Dorn Named Pacific Coast Manager for Devoe and Raynolds

Robert Dorn has been appointed Pacific Coast District Manager for the Devoe & Raynolds Company.

The announcement was made at a recent sales meeting of Devoe sales representatives from eight Pacific coast states held at the Huntington Hotel, Pasadena, California.

In addition to the announcement, the sales representatives heard J. H. Kolseth, vice president in charge of trade sales of Devoe & Raynolds, talk on *The Changing Paint Market.*

Other matters discussed were the firm's new products, and the advertising and merchandising program for the year ahead.

•

Morris Paint Firm Announces Odorless Interior Paint Line

A complete line of interior paints have been made available by the Morris Paint & Varnish Company of St. Louis, Mo.

According to the firm, the paints are completely odorless and are identified by a "C. O." emblem on the label of each can.

•

R. I. Wishnick Renamed Chairman Of Paint Division Charity Drive

Robert I. Wishnick of the Witco Chemical Company, had been renamed chairman of the Paints, Chemicals, Oil and Rubber Industry Division of the New York United Jewish Appeal.

Mr. Wishnick will also serve as chairman of the Special Gifts Committee.

Designated honorary chairmen of the Division, are Monroe H. Sander, Monroe Sander Corporation, and Rudolph G. Sonneborn, L. Sonneborn Sons, Inc.,

The division's annual UJA dinner has been set for May 7, at the Waldorf-Astoria Hotel.

Chats about Finishes

NEW DEVELOPMENTS IN LOW-COST, ODORLESS FLAT WALL ENAMELS

by

V. J. LARSON

Research Division

Hercules' Synthetics Department

Intensive work at Hercules' products Application Laboratory has provided valuable data on the low-cost processing of self-sealing, self-priming alkyd liquids in closed set kettles or regular portable varnish-making kettles . . . merely by heating with any of the common unbodied oils.

This new technical information for formulating improved alkyd flats has been receiving the special attention of economy-minded paint manufacturers. It deals with the effective properties of Pentalyn® B56 resin, and tells how odorless solvents can be used especially when small quantities of Abitol® Hercules hydroabietyl alcohol are included.

Write to me at the address below, and I'll see that you get complete data and testing samples of Pentalyn B56 and Abitol.

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Synthetics Department

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Gives you far brighter mass color, much cleaner tint, is more easily dispersed than any red iron oxide pigment yet produced!

MEANS THAT YOU CAN NOW USE A LOW COST IRON OXIDE PIGMENT FOR WORK WHERE MORE BRILLIANT COLORS ARE REQUIRED FROM LIGHT RED TO DEEP MAROON

Chemical and Physical Properties	
Fe_2O_3	95.0% MIN.
Sp.G.	4.80
Oil ABS.	.21-22
Hiding SQ. FT. per LB.	850-1,000

KROMA RED applications:

- Toy and furniture enamels
- House and barn paints
- Floor enamels
- Resin and latex emulsion paints
- Automotive finishes
- Camouflage (high infrared reflectance)
- Rubber products
- Plastics
- Textile finishes
- Floor coverings
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- Cement products
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. . . and many other uses.

Write today for complete tech report on Kroma Reds—entirely new iron oxide pigment. Address Department 23, C. K. Williams & Co., Easton, Pa.

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108 SHADES AND TYPES OF IRON OXIDE PIGMENTS

DR. A. C. ELM TO PRESENT 5th J. J. MATTIELLO LECTURE

Dr. Adolf C. Elm, of The New Jersey Zinc Co., has been selected to present the fifth Joseph J. Mattiello Lecture at the 1953 Annual Meeting of the Federation of Paint and Varnish Production Clubs, to be held at Chalfonte Haddon Hall, Atlantic City, N. J., October 29, 30, and 31, 1953.

Dr. A. C. Elm

The Mattiello Lecture was instituted by the Federation in 1948 to honor the late Dr. Joseph J. Mattiello, an outstanding scientist and author in the field of decorative and protective coatings.

Each lecture, the scientific highlight of the Annual Meeting, is a paper on a phase of coatings chemistry, physics, or engineering presented by a man recognized for having made outstanding contributions to the sciences, particularly as they relate to the paint, varnish, lacquer and allied industries.

The 1953 Lecturer is an authority in the field of drying oils, pigments, and paints. He is the author or co-author of more than 30 published papers on subjects in this field and is an eminent student of the physical and chemical properties of paint films, and their behavior under exposure to various conditions.

Dr. Elm received his Ph.D. from the University of Marburg in Germany in 1923. In 1924 he became associated with the laboratory of the Finishes Division of E. I. duPont de Nemours & Co., Inc. and later joined the laboratories of the American Asphalt Paint Co. and McCloskey Varnish Co. Since 1929 he has been a member of the staff of the Research Department of The New Jersey Zinc Co. and is now Research Supervisor.

Dr. Elm is a member of the Engineers' Club of the Lehigh Valley, the American Institute of Chemists, and the American Chemical Society. He is a past chairman of both the Lehigh Valley Section and the Paint, Varnish and Plastics Division of ACS.

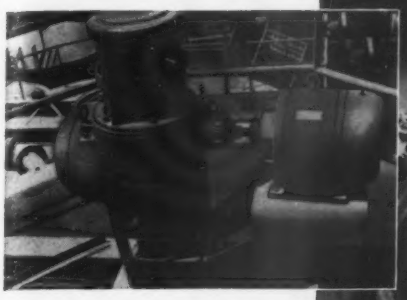
•

New York Vehicle Group To Hold Meeting May 13th

The May meeting of the Vehicle Manufacturers' Group will be held at the Hotel Brevoort, 8th St. and 5th Ave., New York on May 13th, 6:30 P.M.

Speakers for the evening will include: Charles Gardner of the Advance Solvents Corp. who will discuss "New Developments in Driers," and Stanley Yokell of Industrial Process Engineers who will handle "questions and answers" regarding alkyd resin manufacturing equipment.

THREE MINUTES is all it takes to get color uniformity in 75-gallon batch with a portable LIGHTNIN Mixer. Thirty models, sizes ⅛ to 3 HP.



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COMPRESSED AIR operates this portable LIGHTNIN Mixer, making it fully safe even with explosive materials. Speed is fully variable up to 1750 RPM. One of seven models, ⅛ to 1 HP.

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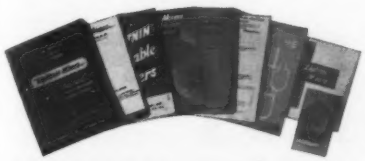

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News of Paint and Varnish Production Club Meetings

New York

The regular meeting was held on April 2nd in New York City. Two hundred and forty members and guests attended to hear Mr. F. A. Lilley of E. J. DuPont De Nemours and Company present a paper on *The Effect of Toning Agents on the Hiding Power of White Architectural Enamels.*

F. A. Lilley

Mr. Lilley, a graduate of Drexel Institute of Technology, has been associated with the Pigments Department of DuPont since 1935. The past several years have been spent evaluating pigments in paints — primarily in interior enamels.

A great deal of information, according to Fred Lilley, is available on the hiding power of Ti O_2 in White architectural enamels. However, data pertaining to the hiding power of toned architectural enamels are relatively meager.

This study is intended to obtain data on the effect on hiding power when architectural enamels are toned with each of several selected colored pigments.

In his study Mr. Lilley worked with pentaerythritol alkyd enamels containing several concentrations of titanium dioxide per gallon. Eight different toning agents were selected and evaluated. Equal additions of each color were not used but instead the various colors were added so that, in each case, the paints containing the highest amount of each color were approximately equal in visual depth of color. This study included the effect of four spreading rates and five Ti O_2 concentrations on hiding and apparent reflectance. From this data curves were plotted showing contrast ratio versus per cent color at the four different spreading rates and five Ti O_2 concentrations.

Mr. Lilley presented Ektachrome slides of the various curves and of the toned panels.

Most of the toning colors followed a similar pattern of showing an appreciable increase in hiding (contrast ratio) for a corresponding decrease in apparent reflectance (increase of color concentration. The exception being the Medium Chrome Yellow. The yellow gave the smallest contrast ratio increase per unit decreases in apparent reflectance.

The curves developed will permit the selection of the required amount of Ti O_2 per gallon to achieve a given hiding power at a given brightness level for the range covered by the eight different colors.

William Creco, of the resolutions committee read a letter to be sent to the family of John Murphy who died on March 7, 1953. Jack as he was known to the club members was a past president, 1943 and very active generally in club affairs.

The New York Paint and Varnish Production Club will hold its next regular meeting on May 7, 1953 in the Building Trades Employers' Association dining rooms 2 Park Avenue, New York City.

The speaker of the evening will be Mr. C. F. Rassweiler, Vice-Chairman of the Board, Johns-Manville Corporation who will cover "The Role of the Paint Chemist in Modern Business Management."

It is the purpose of this talk, to discuss certain aspects of modern management thinking which demand a bigger contribution than formerly from technical men.

Northwestern

Dr. R. McCleary of Thompson-Weinman was speaker of the evening at the April meeting. He discussed Calcium Carbonate Extender Pigments in Exterior House Paints.

He said that the choice of extender pigments for exterior house paints has become very important due to the volume used, the cost of low bulking hiding pigments and the great variation in durability properties of various grades of titanium dioxide.

Voluminous data on the tests conducted were presented with the aid of slides. Data sheets were made available to all the members present for more detailed study.

Some of the conclusions drawn were that the cracking tendency in white house paints decreases as the particle size increases due to the lower oil absorption. In tints the non-chalking titanium dioxide was used and no cracking was observed after five years exposure. Dry ground calcium carbonate from various sources throughout the eastern portion of the United States seemed to perform on about the same level.

High pigment volume white paints lessen the tendency of cracking failure, and use of rutile titanium dioxide is very helpful.

Self cleaning whites containing low absorption ground calcium carbonate as the sole extending pigment display very good mildew resistance even where the zinc oxide content is very low. Use of a small amount of high brightness mica practically insures against a cracking type of failure. Ground calcium carbonate which contains substantially no particle over 25 microns and of low oil absorption gives best overall results in exterior house paints.

Detroit

Baffle and Blade Variations for Paint Processing Tanks was presented by Ernest Jeanne at the Club's April 28th meeting.

Mr. Jeanne used some equipment to illustrate his talk.

C-D-I-C

The 329th meeting was held at Suttmillers in Dayton, April 13, with 45 members and guests present.

Speaker of the evening was C. L. Jones of the Hercules Powder Company, who spoke on *Safety.*

He used the case history method to illustrate his talk. Mr. Jones covered (1) fire-explosions as the chief hazard; (2) Managements' place and responsibility; (3) Delegation of responsibility to someone in management group; (4) Getting things done promptly. A question and answer session followed the talk.

The Nominating Committee submitted the following slate of officers for 1953-1954: Walter Ziegler, President; Robert Lipp, Vice President; William Foy, Secretary; Dr. Carly Opp, Treasurer, and Harry Poth, Jr., Treasurer.

Ray Shoemaker was reported by the Technical Committee as leaving that group and that no one remained to head the Club paper.

The vote on the Constitutional changes was carried and recommendations of the Constitutional Committee tabled for consideration at the September meeting.

It was also announced that the annual golf meeting would take place June 8.

SA-604 Alkyd Resin has all-around talent!

SA604

ALKYD RESIN

Acid Number	4-6
Color (Hellige)	3-5
Viscosity (Gardner)	Z1-Z3
Specific Gravity	.945-.955
Solids Content	70%
Solvent	Petroleum Spirits

Standardizing on one all-around resin is a practical way to cut down on inventory. SA 604 alkyd is *right* for many jobs: architectural gloss, semi-gloss, and flat enamels, maintenance, marine, and industrial finishes. It has excellent gloss and color retention, brushability, good initial color, toughness and durability.

Whether you standardize on an existing resin or need a new special formulation, call your local Schenectady man. He'll analyze your requirements and come up with the right answer.

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Basic Materials Conference To Cover Uses of Atomic Energy

The effects of atomic energy on industrial products, and production methods will be discussed at the First Conference of Basic Materials to be held June 15-19, at the Hotel Roosevelt, New York, concurrently with the Exposition of Basic Materials for Industry at the Grand Central Palace in New York City.

Dr. Carson Dalzell, Chief, Reactor Materials Division, U. S. Atomic Energy Commission, will make the principal speech on the subject, *Materials and the Atomic Age*. Theodore C. Dumond, editor, "Materials & Methods," will be general chairman of the conference.

Among the problems to be considered are the use of atomic energy for power plants; uses of radioactive materials for testing purposes and investigating properties of other materials, and the effect which the availability of radioactive materials will have on the selection of materials in general.

Some production problems, such as the selection of containers for radioactive materials will also be considered.

Approximately 100 exhibitors are expected to have leading engineers present at their booths to discuss new and old uses of standard materials, the development of new raw materials, and the application of component parts used in manufacture.

The entire field of material selection will be considered at the conference. One session will be devoted to the economic effects of new materials already developed and those in the research stage. Other sessions will include discussions of engineering departments from the standpoint of research, the development of books which specify standards, sources of information about new materials, and materials for high strength, for use at high temperatures and for withstanding corrosion.

Advance registration cards may be obtained from Clapp & Poliak, Inc., founders of the show and conference, 341 Madison Ave., New York 17, N. Y.

•

1st Traveling Material Handling Clinic Announced for New York

The first in a series of "Traveling Clinics" on material handling scheduled for 1953 by the Material Handling Institute will convene June 10, at the Hotel Statler in New York, at the request of and in cooperation with the New York City and New Jersey Chapters, American Material Handling Society.

Prior to the all-day meeting of the clinic, chapter members of the AMHS will be polled to find out what are the most pressing problems of users in the New York area.

The New York clinic will be divided into several separate panel discussions, meeting concurrently, according to general types of problems presented. Each panel will have a specialist in each general type of material handling activity.

A moderator from the AMHS and a co-moderator from the MHI will lead each discussion group. The MHI will send a group of five specialists for each of the several discussion groups.

Other clinics in the future may be held in Boston, Chicago, Pittsburgh and Philadelphia in conjunction with AMHS chapters in those cities.

•

Devoe & Raynolds Co. Opens Service Store in Atlanta, Ga.

The Devoe & Raynolds Company has announced the opening of a new service store at 229 Techwood Drive, N. W., in Atlanta, Georgia.

Located in the heart of Atlanta, the two-level building is air-conditioned and covers 10,000 square feet providing, besides store and office space, storage facilities for all Devoe & Raynolds paint lines. An 8,000 square foot parking lot adjoins the building.

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PANAREZ
RESINS

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HELPS CUT PRODUCTION COSTS IN OLEO-RESINOUS VARNISHES

PANAREZ resins definitely improve chemical and mar resistance of protective finishes. They are neutral, and are compatible in oleo-resinous varnishes with phenolics, ester gums, hydrogenated rosins, coumarone-indene, and many other commonly used synthetic resins.

PANAREZ resins are unexcelled, for Economy . . . Uniformity . . . Quality . . . Dependability.

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PANAREZ 3-210	9	200-220	230	0-1
PANAREZ 6-210	11	200-220	170	0-1
PANAREZ 7-210	18+	200-220	150	0-1
PANAREZ 8-210	18+	200-220	130	0-1
PANAREZ 12-210	16	200-220	60	0-1

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Are you "OUT" in the cold on *Alkyd Flats?*

MAKE THIS QUICK TEST YOURSELF with either clear or pigmented resins—See what happens to paints formulated with Aroflat* 3025 vs. other resins when the temperature drops. The test above shows the difference at 88 degrees and at 65 degrees—which covers the normal application range. Aroflat 3025 makes a difference you can see!

The *controlled viscosity* characteristic which is imparted to paint by U.S.I. Aroflat 3025 is apparent over a wide range of normal application temperatures. This is another plus which proves Aroflat to be *unique in the field*, even after the recent flood of "competitive" alkyds.

If you will make a temperature test of Aroflat alkyds against other alkyds, you will discover immediately why Aroflat 3025 is preferred for quality paints — paints that are *safe on the shelf* and *on the consumer's brush* regardless of temperature changes.

Aroflat 3025 is the long-oil, pure alkyd resin which was pioneered by U.S.I. in 1950 and is designed especially for the manufacture of highest grade wall finishes, flat and semi-gloss. As a result of unique characteristics, it continues to be the leader in the field and paint manufacturers rely on Aroflat 3025 to keep their products in the market and not "out in the cold" when temperatures vary.

The entire Aroflat line offers the advantage of controlled "temperature-consistency factor" — a point to remember when you formulate your paints.

FOR ALL YOUR RESIN NEEDS, CHECK WITH U.S.I. —

AROFLAT* 3025 (and 3010 and 3050) for alkyd flats and semi-gloss, AROPLAZ* 1274 for latex paints. *Reg. U. S. Pat. Off.*

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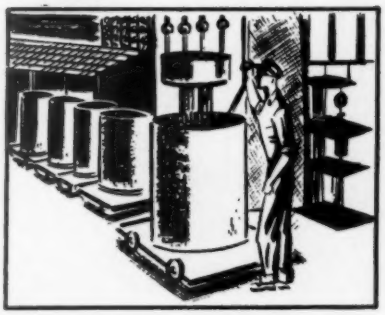
Silica, extender for paints. ISCO Amorphous Pure Soft Decomposed. Prime, white and uniform-99½% pure.

Talc, extender for paints. Sierra Fibrene C-400—all particles finer than 40 microns. Sierra Mistron-surface mean diameter of 0.76 microns.



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This section is intended to keep our readers informed of new and improved products. While every effort is made to include only reputable products, their presence here does not constitute an official endorsement.

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BATCHING SCALE

Has Reverse Reading Dial

Known as "Hydroscale", this unit is used to measure pour-off. Equipped with a reverse reading dial. When a full container is lifted and the pointer takes position, the operator resets the dial so that "O" coincides with the pointer by turning a convenient adjustment control. As the contents are poured off, the pointer retreats, registering directly the amount of decreased weight. No subtraction or computation is necessary. After one pour, the dial may be reset at "O" for the second pour, etc. The dial can be reset to "O" for full 360°. Scales are available in 500 and 1000 pound models with 12 inch dials. Hydroway Scales, Inc., 20624 W. 8 Mile Rd., Detroit 19, Mich.

HYDRAULIC UNIT

Raise and Lowers Trucks

Known as the "Adjust-A-Truck", this unit is designed to raise or lower over-the-road carriers to dock height. According to the manufacturer, this unit is especially useful for those firms who do not have adequate room on their docks or in front of their docks to install adjustable dock ramps The unit is set into the pavement in front of the dock and by means of heavy-duty electric hydraulic system, it can adjust each vehicle to dock height. Its capacity, 4,000 lbs. The unit is designed for a 110-volt control circuit. Rowe Methods Inc., 2534 Detroit Ave., Cleveland 13, Ohio.

SYLOID 308 makes it possible for you to realize new high standards in flatting efficiency . . . producing a modern flat finish at a lower cost. Mill room savings are increased because Syloid mill bases can be made highly concentrated with a very short grinding time. Capacity is often doubled . . . less flatting agent is required.

SYLOID 308 is a finely-sized synthetic silica of extremely high purity. Particle size is controlled to give uniformity in flatting results.

For information on how you can flatten finishes . . . economically . . . uniformly with **SYLOID 308** . . . for help on a specific problem . . . write Davison's Technical Service Department. *T. M. Reg. Applied For

Progress through Chemistry

THE DAVISON CHEMICAL CORPORATION

Baltimore 3, Maryland

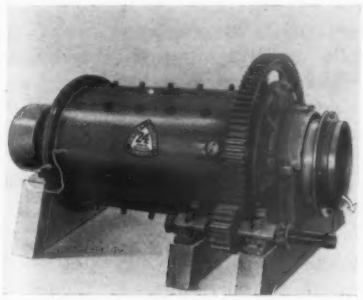
PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES, PHOSPHATE ROCK, SILICA GELS, AND SILICOFLUORIDES. SOLE PRODUCERS OF DAVCO GRANULATED FERTILIZERS

NEW PRODUCTS

CLARK

DRUM HANDLING ATTACHMENT
Adjust to Drum Size

Horizontal drum handling attachment is completely interchangeable with entire line of fork trucks. According to the manufacturer, this unit is semi-automatic, easily adjusting itself to a variety of drum sizes for horizontal lifting and tiering. Handles drums ranging in over-all length from 26″ to 38″. Also handles full or empty drums, singly or in pairs. Clark Equipment Co., Battle Creek, Mich.



DENVER

BALL ROD MILL
Convertible Type

Improved design of convertible ball rod mill is available in 30″ x 1[illegible]″, 30″ x 36″, 30″ x 54″ and 3[illegible]″ x 72″ sizes. The length can be increased to 72″ by increments of 18″. Maximum size gear and pinion is supplied on all sizes so that the mill may be increased to 72″ at any time. It is said that the type of discharge opening (small, medium, large) or trunnion overflow can be readily changed by installing the correct throat liner in the discharge unit. Denver Equipment Co., 1400 — 17th St., Denver, Colorado.

PROCESSED LINSEED
Improved Properties

Packaged grade of linseed is said to be improved by "Dymerization". Improvements claimed are: rapid blending with pigments, speedier mixing, better pigment dispersion than the raw oil. Cargill, Inc., 200 Grain Exchange, Minneapolis 15, Minn.

CLOUD, POUR TEST UNITS
Trouble-Free Refrigeration

Cloud and pour test cabinets is said to produce trouble-free refrigeration for temperatures as low as −90 deg. F. The accuracy and speed of processing tests such as ASTM D-97, A. A. F. Specifications 3608, A. P. I. #506 and similar test calling for low temperature control, have been improved

Two cabinets cover the full range of Cloud and Pour Tests. The 3-compartment cabinet operates at plus 30°F., 0°F., and −30°F., while the 2-compartment cabinet operates at −60°F and −90°F. Compartment thermostats are preset and automatically hold temperatures within 2°F. Operational simplicity and a minimum of maintenance service are the prime objectives in the redesign. The cabinets reach operating temperature rapidly; the coldest compartment reaches −90°F in about 2½ hours. Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill.

"R" for fluffy

All Cabot grades of Furnace Paint Blacks now include the letter "R" in names designating their fluffy (unpelleted) form. This applied previously to only Sterling R and Sterling 99R. In order to make the rule a general one, certain names of blacks have been changed.

CABOT FURNACE BLACKS for PAINT

"R" NAMES FOR FLUFFY (Unpelleted) FORM	PELLETS
VULCAN 3R *(formerly Vulcan R)*	VULCAN 3
STERLING 99R *(no change)*	STERLING 99
STERLING 10R *(formerly Sterling 10 Fluffy)*	STERLING 10
STERLING 92R *(formerly Sterling 92)*	STERLING LL
STERLING R *(no change)*	STERLING S
STERLING VR *(formerly Sterling V Fluffy)*	STERLING V

For Low Cost, High Quality Furnace Blacks with Low Oil Absorption, High to Low Tint, look to Cabot for Carbon Blacks.

For Technical Information and For Samples, Address

CABOT

Special Blacks Division
GODFREY L. CABOT, INC.
77 FRANKLIN ST., BOSTON 10, MASS.

The OLD WAY WAS NEVER EASY LIKE THIS

with BOWSER XACTO METER

. . . FOR SAFE, PRECISE PAINT-MAKING!

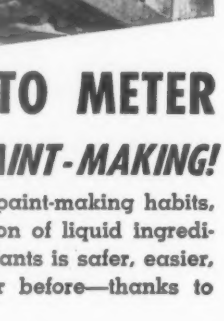
Bowser Xacto meters can simplify your paint-making habits, too! Now, the measurement and distribution of liquid ingredients in many paint, lacquer and varnish plants is safer, easier, more accurate and less costly than ever before—thanks to Bowser Xacto meters.

Compare the two methods (yes, bucketing is still extensively used) . . . and it's easy to see why Xacto can save labor, time . . . prevent waste from spillage . . . reduce accidents . . . and minimize fire hazards.

Chances are Bowser Xacto meters will more than pay for themselves within the first year.

FOR PRODUCT UNIFORMITY

For more than a quarter of a century Bowser Xacto meters have been widely used wherever extreme accuracy has been an important requirement. Xacto meters eliminate guesswork . . . they can be set to deliver predetermined quantities and shut themselves off . . . or even print a delivery ticket when desired.



Xacto handles more than 662 different liquids

Our Engineers are at Your Service. Write TODAY!

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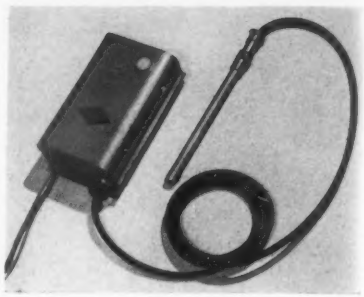
1377 CREIGHTON AVE., FORT WAYNE 2, INDIANA

Regional Offices • Atlanta • Chicago • Cleveland • Dallas • Kansas City • New York
San Francisco • Washington, D. C. • Canadian Plant and Sales, Hamilton, Ontario

NEW PRODUCTS



THERMO

LIQUID LEVEL CONTROL
Electronic Type

Based on the capacitive action of liquid surrounding a porcelain-enamel-covered-electrode, this level control provides adjustment of liquid level and cut-in, cut-out differential over very wide limits.

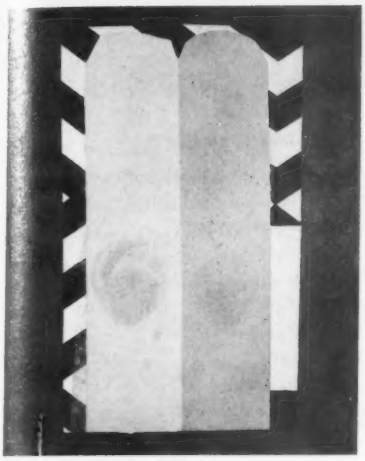
In operation, the new unit consists of the probe which is mounted directly at the location of the controlled liquid; a connecting cable which can be 1000 feet long if necessary; and the control unit which can thus be located for operating convenience. The two main controls (liquid level and differential) are designed for screw-driver adjustment while a vernier or fine control on liquid level is operated by a panel-front knob.

Standared models operate from 115-volt 60cps supply while special units are available for 230-volt or 25 cps operation. Suggested uses include proportioning and blending control, filling operations, mixing control, etc. Thermo Instrument Co., 1166 El Camino Real, Belmont, Calif.

FLATTING AGENTS
For Alkyd-Urea Varnishes

Syloid 162, a synthetic silica, is claimed by the manufacturer to be useful as a flatting agent for urea-alkyd varnishes. It is said to give a matte, or hand-rubbed effect desired in the finish of varnished furniture. Other properties claimed are: high flatting efficiency; can be ground quickly and large amounts can be ground in a single mill charge. The Davison Chemical Corp., Baltimore 3, Maryland.

NEW PRODUCTS



GRIFFIN

SURFACE ACTIVE AGENT
For Color Uniformity in Flats

In a study of color uniformity in flat wall paints conducted by F. K. Wilson of City College of San Francisco, it was found that Tenlo-70 was found to be effective in increasing wetting and dispersion of the pigments in flat wall paints which resulted in color uniformity of such finishes. According to this study, a factor which causes this problem is selective flooding.

This problem would probably never arise, if paint were applied over a sealed surface at all times, and allowed to remain wet for a sufficiently long time.

Under practical conditions of application the the film sets too rapidly for this equilibruim to develop, and trouble is experienced in touching up sags or runs. And, more important still, difficulty is encountered in lapping adjacent areas of painted surfaces, because the film does not maintain a wet edge.

In this test a flat wall paint of the odorless type was prepared with Tenlo-70 added as a wetting agent at the mixing stage. The odorless type was chosen due to its increasing popularity and the fact that the odorless solvents employed have poor solvent power and contribute to a lower degree of wetting. A control paint was prepared without the wetting agent.

Samples of both paints were tinted with equal amounts of commercial tinting pastes and drawdowns made over a non-porous surface. After allowing the films to partially set, portions of each were rubbed with the finger. On drying, the sample with the wetting agent showed overall uniformity of true color (see illustration). The control sample was masked with a white pigment float except where the rubbing had uncovered the true color.

Similar drawdown tests conducted on porous surfaces produced similar results. In spite of penetration, the treated sample dried to a uniform true color; the color of the control was neither uniform nor true.

In conducting these tests it was noted that the wetting agent, or surface active agent, reduced the viscosity to a level of stability.

Griffin Chemical Co., 1000 16th St., San Francisco 7, Calif.

DIMETHYLFORMAMIDE
Solvent for Urea-Alkyds

Dimethylformamide has interesting applications as a paint solvent. In urea-formaldehyde and alkyd resin combinations, it is said to permit workable viscosity at higher than usual molecular weights. It is a solvent for many natural and synthetic resins including acrylonitrile polymers. Available in drum and tank car quantities. Samples and technical literature are available. Rohm & Haas Co., Washington Sq., Philadelphia, Pa.

CASEIN
Stabilizer for Latex Paints

"PMX Special Casein" is available in dry form and when employed in latex emulsion paints, it is claimed to impart the following properties: better flow, improved viscosity and brushability, and prevents hardening of the paint system. Borden Co., Chemical Div., 350 Madison Ave., New York, N. Y.

FLOOR LIQUID
Controls Dusting

For controlling dust on concrete floors, Transvar 266 is claimed to have shown good results in binding tiny dust particles together that are actually a part of the concrete surface. The dusting is the first sign of disintegration. This material is light in color and can be applied by brush or mop. United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio.

How to make sure your products give a

use

Micro-Klean

. . . the filter choice of enamel men everywhere!

Here's what you get when you install MICRO-KLEAN

- Positive removal of all oversize pigments and contaminants.
- Greater filter capacity for uninterrupted running of larger batches.
- Easy installation and maintenance.
- Cartridges available to handle #5 grind and up.

Find out today about these compact, economical filters. Write to Cuno Engineering Corp., Dept. 288M Meriden, Connecticut.

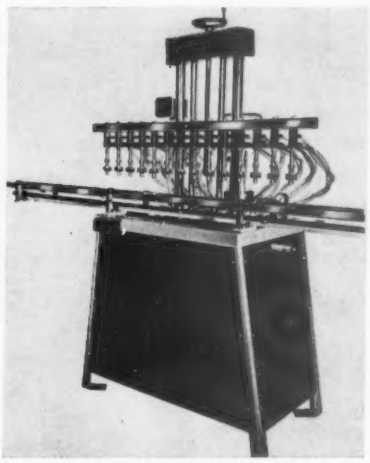
M.3.8

CUNO ENGINEERED FILTRATION

NEW PRODUCTS

LIQUID FILLING MACHINE
Semi-Automatic

To operate, the operator presses a momentary contact switch and the filling spouts automatically lower into the containers and the product begins flowing. At the end of a predetermined amount of time, the timer clicks off and the spouts automatically rise to their original position. During the filling operation the operator makes ready another set of empty containers for filling. Under the previous method of filling, the operator manually lowers an operating lever, remains rooted at his position in front of the machine until the containers have filled and then manually raises the operating lever to stop the flow of the product. As it is necessary for the operator to stand at the machine waiting for the containers to fill, it generally requires another worker to prepare a set of empty containers for filling. Packer Machinery Corp., 30 Irving Place, New York 3, N. Y.



PACKER

FIRE EXTINGUISHERS
Improved Line

Line of portable carbon dioxide fire extinguishers is equipped with faster-acting valves, according to the manufacturer. Five models available: 2½, 5, 10. 15, and 20. Carries Underwriters' and Factory Mutual approval. American-La-France-Foamite Corp., Elmira, N. Y.

PALMER-SHILE

VERTICAL DRUM LIFTER
Handles Open, Closed Drums

Vertical drum lifter has sure-hold safety grip. All-steel construction with heavily welded chair Used for either high or low ceilin conditions. The Palmer-Shile Co 12622 Mansfield, Detroit 27, Mich

FORK TRUCK
With Load Stabilizer

Unit is designed for safe transportation of unstable and semi-stable loads, and also for loads which are subject to rough travel. It is claimed that the stabilizer will allow fork truck operators to stack at great heights with maximum safety. Elwell-Parker Electric Co., 4205 St., Clair Ave., Cleveland 3, Ohio.

McCloskey's No. 10510

UNIVERSAL TINTING PASTE VEHICLE

The greatest money-saver and improvement for paint manufacturers since the discovery of titanium. Our technical staff have perfected an entirely new vehicle which is a must in every paint manufacturing plant, not only because it will save the paint manufacturer hours of labor and untold loss through waste such as skinning, hardening, etc., of tinting color, but reduces the tinting color of a manufacturer to one tinting vehicle for all types grinding mediums.

This marvelous vehicle eliminates the necessity of grinding tinting colors in different vehicles to meet the demand of each particular product. Frankly, you cannot afford to be without McCloskey's No. 10510.

Imagine . . .

ONE TINTING PASTE FOR--

STYRENATED ALKYDS
LONG OIL ALKYDS
MEDIUM OIL ALKYDS
SHORT OIL ALKYDS
HOUSE PAINTS
LACQUERS
OLEORESINOUS VARNISH ENAMELS
UREA RESINS
CHLORINATED RUBBER
MELAMINE RESINS

100% TINTING COMPATABILITY WITH ALL OF THESE

Order a drum or a five gallon container of this material at our risk.

McCLOSKEY VARNISH CO.

PHILADELPHIA • CHICAGO
PORTLAND, ORE. • LOS ANGELES

Personnel Changes

CUNO ENGINEERING

James E. Duff, advertising and sales promotion manager, has been appointed eastern district sales manager. Mr. Duff came to Cuno from Frank W. Hankins & Company of Philadelphia, where he served as sales and marketing consultant during 1950 and 1951. Prior to that he was an assistant sales manager for a Division of the Ingersoll-Rand Company in New York. Mr. Duff holds a degree in industrial engineering from Lehigh University.

J. E. Duff

SURFACE CHEMICALS

Harry M. Anderson, Jr. has been appointed assistant to the president in charge of Surface Chemicals, Inc., division of the McKay Company. He will direct the research, manufacturing and sales program for the company's line of speciality finishing products and chemical resistant finishes. Mr. Anderson will make his headquarters at Surface Chemicals' laboratories and plant in McKees Rocks, Pa. Prior to his present appointment, he was with the Chemical Division of the General Electric Corporation in Cleveland.

H. M. Anderson, Jr.

BAKELITE

Robert A. Brenneck, for many years District Manager of Coating Resin Sales in the Chicago Office, is now in charge of sales for the firm's surface coating materials in the San Francisco and Pacific Northwest area. He will operate out of the San Francisco sales office.

SAMUEL CROOT

Don S. Bolley has been named technical director of commercial chemical development, and **M. Kent Smith,** director. Mr. Bolley was formerly director of research, and Mr. Smith formerly director of development.

NATIONAL LEAD

Warren T. Trask has been named assistant manager, Metal Division, of the firm's St. Louis and Southwestern branches. Mr. Trask joined National Lead in 1946 as manager of steel package sales. He was most recently manager of the newly-formed Steel Package Division.

CABOT

P. H. Delacour has been appointed vice president in charge of sales for Cabot Carbon of Canada. He has been related to the sale of Cabot products in Canada for 25 years. Most recently he was a director of Harrisons & Crosfield (Canada) limited.

F. Ronald Gorrie has been named assistant sales manager.

NEWPORT INDUSTRIES

Edwin G. Delaney has been appointed to the technical sales staff. He will handle the firm's line of naval stores, treated rosins and tall oils, and will also assist the regular Newport representatives in the Philadelphia and Baltimore territories. Mr. Delaney has been associated with protective coating and allied industries for 20 years, his first position being paint chemist with the Devoe & Raynolds laboratory.

E. G. Delaney

ALCHEMY ?

WE'LL TAKE MIDAS GOLD

Talk about making gold from a base metal . . . have you had a look at R-B-H's Midas Gold? It offers all the brilliance and richness of the real thing, and works better in a finish. Midas Gold is

1. Lightfast
2. Transparent
3. Durable
4. Non-bleeding

Midas Gold is not only durable itself, but seems to protect the pigments used with it in rich, new metallic combinations.

In stains, Midas Gold offers the brilliance of a dye and the permanence of a lightfast pigment.

Midas Gold is in the form of ready-to-use dispersions.

R-B-H . . . *for finishes of integrity.*

R-B-H Dispersions

DIVISION OF INTERCHEMICAL CORPORATION
DISPERSION TECHNICIANS
BOUND BROOK, NEW JERSEY

Pigment dispersions in nitrocellulose; ethyl cellulose; urea formaldehyde; vinyl and alkyd resins; chlorinated rubber and other plastic binders.
R-B-H AND MIDAS GOLD ARE TRADE-MARKS OF INTERCHEMICAL CORPORATION

SOLVENTS and CHEMICALS for INDUSTRIAL FINISHES

A WIDE RANGE OF PRODUCTS including solvents adaptable to spray coating, dip-coating, roller coating, flow coating and electrostatic finishing. Select the solvent you need for the specific finish you make.

SOLVENTS AND CHEMICALS FOR ALL COATINGS. Alcohols, esters, ketones, propylene glycol ethers, petroleum and aromatic solvents, plasticizers, glycols, naval stores and stearates.

DRUM, TANK WAGON, TRANSPORT. No need to carry top-heavy inventories when our stock is as close as your telephone. Save warehouse space. Use our quick supply service. Call today!

The SOLVENTS and CHEMICALS GROUP

Distributors for America's Leading Producers

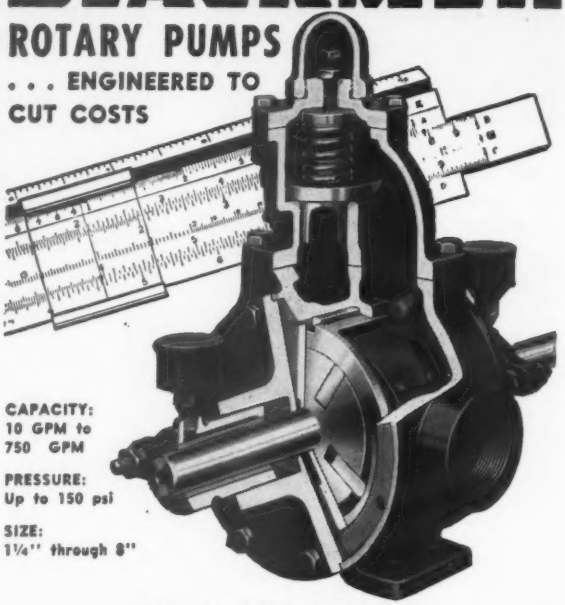
Consult your telephone directory for the address of your nearest Group member:

BUFFALO:	Buffalo Solvents & Chemicals Corporation
CHICAGO:	Central Solvents & Chemicals Company
CINCINNATI:	Amsco Solvents & Chemicals Company
CLEVELAND:	Ohio Solvents & Chemicals Company
DETROIT:	Western Solvents & Chemicals Company
FORT WAYNE:	Hoosier Solvents & Chemicals Corporation
GRAND RAPIDS:	Wolverine Solvents & Chemicals Company
HOUSTON:	Texas Solvents & Chemicals Company
INDIANAPOLIS:	Hoosier Solvents & Chemicals Corporation
MILWAUKEE:	Wisconsin Solvents & Chemicals Corporation
NEW ORLEANS:	Southern Solvents & Chemicals Corporation
ST. LOUIS	Missouri Solvents & Chemicals Company
TOLEDO:	Western Solvents & Chemicals Company

BLACKMER

ROTARY PUMPS

. . . ENGINEERED TO CUT COSTS



CAPACITY: 10 GPM to 750 GPM

PRESSURE: Up to 150 psi

SIZE: 1¼" through 8"

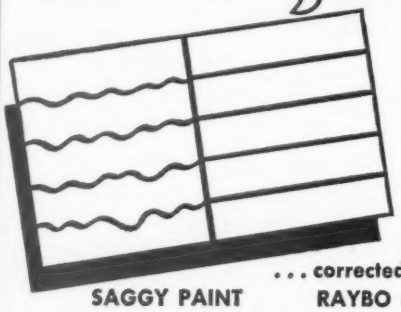
Write for Bulletin 307 to get
"FACTS ABOUT ROTARY PUMPS"

BLACKMER LIQUID MATERIALS HANDLING

BLACKMER PUMP COMPANY • GRAND RAPIDS, MICH.

STOP SAGGING

with raybo 6



SAGGY PAINT

. . . corrected with RAYBO 6

MAKE THIS TEST FOR YOURSELF

As part of the initial formulation, Raybo 6 assures a finished paint with definite anti-sagging property. This unique compound may also be used as a corrective: if a batch of paint flows too freely, addition of Raybo 6 to the finished paint confers sag resistance. Furthermore, Raybo 6 improves drying, adhesion and film qualities. Interested? Send for all the facts and a sample.

RAYBO CHEMICAL CO.
HUNTINGTON
WEST VIRGINIA

Yes, Raybo 6 sounds interesting.
Send ☐ full facts ☐ sample

Name _____
Position _____
Company _____
Address _____

A D-M

Paul McClay has been appointed s es manager for the firm's specialty p oducts on the E stcoast. His headq arters for the n wly created post w ll be the ADM N w York office. M . McClay, who h s spent 32 years in the paint and related industries, j ined ADM in 1945 when he was placed in charge of the engineering and construction of open kettle bodying plants at Minneapolis, Ganado, Texas, and Fredonia, Kansas. The following year he was named manager of the company's Texas operations.

Paul McClay

VELSICOL

E. T. Collinsworth, Jr., has accepted the position of vice president. In this capacity he will act as administrative assistant for the chief operating executive of Velsicol. Mr. Collinsworth, a chemical engineer, was previously director of business research of Monsanto Chemical Company's Phosphate Division. He is a member of the Chemical Market Research Association and the American Management Association.

E. T. Collingsworth, Jr.

ARMSTRONG PAINT

Eugene K. Mack has been named industrial sales manager for out-of-town accounts, succeeding Reginald White who retired after 20 years with the firm as sales manager of the Industrial Division. Mr. Mack joined Armstrong in the Traffic Division, and later served three years in the laboratory. Most recently he served in the sales department.

DAVIS PAINT

Henry E. Hancock has joined the laboratory staff. He was formerly associated with the Sewall Paint & Varnish Co., Kansas City, Mo. Mr. Hancock was president of the Kansas City Paint and Varnish Production Club in 1936 and was a member of the Federation's Executive Committee in 1940.

Karl King recently joined the firm as a member of the laboratory staff.

HART AND BURNS

Lyle Van Patten, formerly with the W. P. Fuller Paint Company, has joined the technical sales force. He will assume the duties of technical sales engineer in industrial coatings and products finishes with offices in Los Angeles. Mr. Van Patten will work in Southern California. He will also be called for special projects where unusual paint technicalities are involved. During the five years prior to joining Hart and Burns, Inc., Mr. Van Patten had extensive experience as an industrial paint chemist and formulator.

CELANESE

William C. Goodwine has been named product manager for plasticizers and allied products.

T. G. Davis has been appointed product manager for intermediates, and **Norman Baker** has been named product manager for solvents.

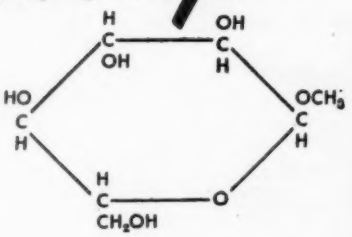
CALCO CHEMICAL

Samuel E. Firestone has been appointed sales representative to the Philadelphia territory. Prior to his present position, he was assistant to the Mid-Central regional manager.

Here's a New Polyol

for

PROTECTIVE COATINGS



Argo Brand Methyl Glucoside is a commercially available, low priced polyhydric alcohol.

If you are interested in a compound esterifiable with linseed oil fatty acids to obtain rapid bodying and fast drying oils, Methyl Glucoside is what you want.

If you are interested in rapid drying, well adhering varnish preparations, Methyl Glucoside is the polyol to try.

If you are interested in tall oil esters with higher body and quicker drying properties, Methyl Glucoside with either glycerol or pentaerythritol is the answer.

In fact, if you are interested in any formulation involving esterification or alcoholysis reactions, Methyl Glucoside will be important to you.

Methyl Glucoside is now supplied in 50-pound multiwall paper bags. Samples and technical information are also available. Send in your request today.

"Fine Chemicals from Corn"

Chemical Division

CORN PRODUCTS REFINING COMPANY

17 BATTERY PLACE • NEW YORK 4, N. Y.

C. Burgess

J. Clancy

E. Sack

E. Spencer

EMERY INDUSTRIES

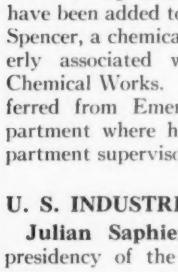
J. P. Clancy has been named sales representative for the New England Area. He will join J. M. Washburn in the responsibility for sales of all Emery products, including fatty acids and derivatives.

C. T. Burgess will take over sales duties in the southern area, which involves the states of Mississippi, Alabama, Georgia and the eastern section of Tennessee.

E. K. Spencer and **E. W. Sack** have been added to the sales staff. Mr. Spencer, a chemical engineer, was formerly associated with the Cincinnati Chemical Works. Mr. Sack was transferred from Emery's Production Department where he had served as department supervisor for 11 years.

U. S. INDUSTRIAL CHEMICALS

Julian Saphier has assumed the presidency of the Gulfport Vegetable Oil Mills, and of Landon Chemicals, both firms of Gulfport, Miss. He has announced his resignation from the U. S. Industrial Chemicals Co., Division of National Distillers Products Corporation. Mr. Saphier has been connected with the synthetic resin industry for more than 22 years. He started in 1931 with the Robert Rauh Company as technical director and became successively, plant manager and general manager. Mr. Saphier joined U. S. Industrial Chemicals in 1938 when they acquired the Rauh Company.



Julian Saphier

U. S. RUBBER

Dr. Earle S. Ebers, formerly sales manager of Kralastic and Vibrin resins, has been named director of research and development in the Naugatuck Chemical Division, replacing M. G. Shepard, who has retired. Dr. Ebers joined U. S. Rubber as a research chemist in the firm's general laboratories at Passaic, N. J.

Dr. D. Lorin Schoene, formerly manager of plastic development, has been appointed to the post of assistant director of research and development. He joined the firm as a chemist in the general laboratories in 1939.

Harold M. Parsekian, formerly sales manager for Marvinol vinyl resins, has been appointed sales manager for all plastics manufactured by the Naugatuck Chemical Division. In his new capacity, Mr. Parsekian will supervise sales for Marvinol vinyl resins, Kralastic styrene co-polymer molding and extrusion powders, vibrin polyester resins, and other plastic raw materials manufactured by the Division. He joined Naugatuck Chemical in 195(

ALLIED CHEMICAL

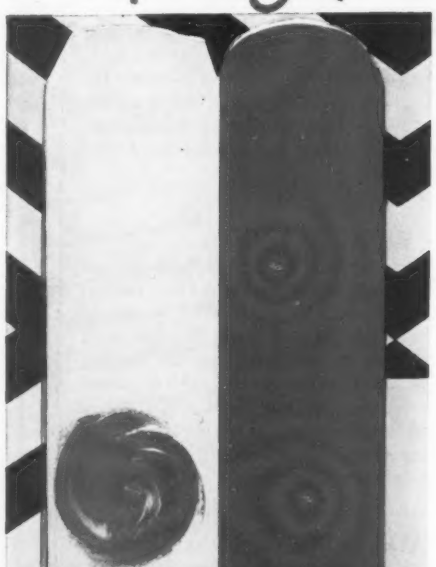
Paul A. Keene has been named assistant to the Director of Development, Solvay Process Division. He will make his headquarters in Syracuse. Mr. Keene, with Solvay since 1919, was for several years chief of research, and more recently has been engaged in technical studies, as well as participating in development of future programs.

TENLO-70

eliminates "blanching" in odorless flats*

Tenlo-70 wets-out **all** *the pigment. In odorless flats, this prevents selective flooding of a portion of the white pigment ("blanching").*

Here's a retouched photograph that doesn't prove a thing!



These are sample-strips of a typical odorless flat wall. The sample on the right was ground with 8 pounds of Tenlo-70 per 100 gallons.

The control strip (left) is masked by a white pigment float. Rubbing has developed a spot of true color.

The uniform true color of the Tenlo-treated sample is not affected by rubbing, showing that the pigment float has been eliminated.

In *your* finished paint this means a product that can be lapped and patched. Sags and runs can be picked-up in partially-set films without giving a streaked appearance.

Although this photograph *shows* what Tenlo-70 can do for your odorless flats, it doesn't *prove* anything. The only way to prove the effectiveness of Tenlo-70 is to use it in your own formulation.

*Control of "blanching" is only one of the advantages of Tenlo-70. It also retards skinning and controls hard settling. This can eliminate the need for anti-skinning and bodying agents.

Get all the facts on Tenlo-70. Write today for free illustrated folder.

GRIFFIN CHEMICAL COMPANY
1000 16th STREET, SAN FRANCISCO 7, CALIFORNIA
Los Angeles Plant: Richmond, California

CONGOLEUM-NAIRN

Robert D. Bonney, director of manufacturing, has been elected vice president, in charge of manufacturing, and also a director. **John C. Criswold,** president and a director of Griswold & Co., Inc., has also been elected a director. Mr. Bonney joined Congoleum-Nairn as chief chemist at the Marcus Hook, Pa., plant in 1918. He subsequently became director of research in 1928, and assistant manager of manufacturing in 1934. In 1952 he received the PaVac Award of the New York Paint and Varnish Production Club for "outstanding contribution to the advancement of the protective coatings industry."

R. D. Bonney

A-D-M

Harold E. Mork, superintendent of the firm's oil bodying and distillation plant in Minneapolis, has been transferred to Los Angeles where he will be plant manager of ADM's new oils processing plant. The three story oils bodying plant, the largest on the west coast, is expected to be completed August 1. Mr. Mork joined ADM in 1945, doing research work on special oils until 1948, when he was named assistant superintendent of the company's Minneapolis oils bodying and distillation plant.

H. E. Mork

KOPPERS

Walter E. Wright, former sales office supervisor for the Chemical Division, has been named sales manager for the Division's western district. He joined Koppers in 1943 as a junior chemist in the company's Butadiene Division at Kobuta, Pa.

John L. Taylor, has been named western plastics manager for the Chemical Division. He will handle Koppers' Polystyrene plastics exclusively. He joined the firm as a sales representative in 1949.

Koppers has also announced that sales headquarters for the Chemical Division's western district will be located at 3450 Wilshire Blvd., in Los Angeles. The office will be shared by the western district sales force of Koppers' Tar Products Division.

SEARS, ROEBUCK

A. B. Robertson, general manager of Sears paint, varnish, resin and wallpaper factories, has announced he will retire July 16. His duties will be assumed by **Sam U. Greenberg.** National sales activities will be carried on by **Wendell G. Beauchamp.** Mr. Greenberg has been vice president and general manager of Sears' California plant, the Pacific Paint & Varnish Co. He has been succeeded at Pacific by **William T. Butner,** who was formerly assistant general manager. Mr. Robertson has been associated with the paint industry for 43 years and has been with Sears 24 years. He is a member of the National Paint, Varnish and Lacquer Association Executive Committee.

SPENCER KELLOGG

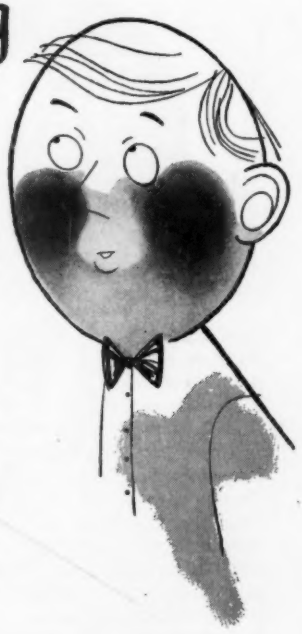
Earl B. Smith, Jr., has been appointed technical service representative for the West Coast with headquarters at their Long Beach, Calif., office. He joined the firm in 1948. During the last four years, Mr. Smith has served as technical service representative, covering Spencer Kellogg's Midwestern markets.

Richard E. Derr has been named to the technical service department. Prior to joining Spencer Kellogg, he was associated with the Varcum Chemical Corporation of Niagara Falls, N. Y., for six years, in laboratory and technical sales work. Mr. Derr is presently serving as president of the Western New York Paint and Varnish Club

If your Lacquer's blushing

TRY

Butyl "CELLOSOLVE"



Butyl "Cellosolve" is compatible with all resins normally used in nitrocellulose lacquers. It produces outstanding blush resistance when used in nitrocellulose lacquer formulations. Try it in your formulation—it may eliminate your blushing problems.

Butyl "Cellosolve" has outstanding viscosity characteristics with phthalic and maleic resins. Its use in high-grade furniture lacquers has given excellent blush resistance, good flow out and gloss, and resistance to cracking and orange peel.

In hot spray lacquers, butyl "Cellosolve" and "Cellosolve" acetate in combination with either butyl acetate or methyl isobutyl ketone offer formulations that can vary widely in evaporation rates with only minor changes in viscosity.

Butyl "Cellosolve" . . .

also acts as an important brake fluid diluent, and as a mutual solvent in industrial cleaners, dry cleaning soaps, and textile and metal-cutting oils. Certain butyl "Cellosolve" esters are plasticizers; the 2,4-D and 2,4,5-T esters are low-volatile herbicides.

CARBIDE *has been producing butyl "Cellosolve" since 1928. We now ship over 75 different commercial solvents—including ketones, esters, alcohols, glycol-ethers, and chlorinated compounds. Whatever your solvent needs may be—Call* CARBIDE*—The Solvent Center. Ask for the Butyl "Cellosolve" Technical Bulletin, F-7862. Offices in principal cities—in Canada: Carbide and Carbon Chemicals, Limited, Toronto.*

CARBIDE AND CARBON CHEMICALS COMPANY

A Division of Union Carbide and Carbon Corporation

30 East 42nd Street UCC New York 17, N. Y.

"Cellosolve" is a registered trade-mark of Union Carbide and Carbon Corporation.

KENTUCKY COLOR

P. J. Bertemes has been appointed exclusive sales agent for the firm's line of Shawnee Dry Colors and will manage Kentucky Color's new Ohio District office in Cleveland at 8905 Lake Ave. He was formerly in charge of color sales for the J. H. Hinz Company of Cleveland. Mr. Bertemes has also been associated with the Sherwin-Williams Co. and Hilton-Davis.

UNION CARBIDE

D. S. Alcorn has been transferred to the New York offices to assist with the market development of chemicals being produced at the new coal-hydrogenation plant at Institute, West Virginia. He joined the firm in 1943. For the past four years, Mr. Alcorn has been a technical representative in the Baltimore District office.

CELANESE

Richard Schwab, sales representative for the Chemical Division, is moving from the New England territory to become manager of the Detroit area.

Walter Lauer, formerly of the plasticizer department in New York, will be responsible for sales in New England with headquarters in Boston, for the Chemicals Division.

Arthur Dowling has joined the Division as advertising manager.

PACIFIC VEGETABLE

R. W. Hammond, industrial oil division sales manager for the Pacific Vegetable Oil Corp., has been transferred to Los Angeles, where he will become president of the California Flaxseed Products Co., a PVO subsidiary. Mr. Hammond will continue to manage national industrial oil sales for Pacific Vegetable Oil, as headquarters for PVO's industrial oils division will be transferred to Los Angeles effective May 1.

SHARPLES CORP.

Allen R. Greenlaw has been appointed general sales manager. Mr. Greenlaw, a graduate of the University of Pennsylvania, has been connected for a number of years with the company in various sales capacties in the New York, Houston and Philadelphia offices. G. J. Keady, president of Sharples, centrifugal and process engineers, announced the appointment.

A. R. Greenlaw

•

Hercules Powder Establishes Sales Lab. in Cellulose Products Dept.

The Hercules Powder Company's Cellulose Products Department has announced the establishment of a new sales-service laboratory for customers who deal with protective coatings based on nitrocellulose, ethyl cellulose, cellulose acetate, and chlorinated rubber.

James R. Yeager, manager market development coatings, Cellulose Products Department, will direct the new laboratory, located at the company's Experiment Station in Wilmington, Delaware.

In addition to providing technical assistance in the laboratory, Hercules representatives will be available to visit individual plants.

•

Morehouse Industries Executive Begins Around the World Trip

A trip around the world by air in 90 days, with stopovers in 50 countries, will be taken by a Morehouse Industries executive to tell customers and prospects of the company's processing mills, and to provide distributors with technical assistance.

The executive for the Los Angeles firm, Norman W. F. Klein, director of exports, has left for Honolulu, the first stop.

He will visit Hawaii, Japan, North, Central and South Africa, Central and South America and the major countries in Europe, the Near East and the Far East.

Morehouse mills are used in the grinding and processing of a varied list of products including paints, greases and chemicals.

Even during the recent period when diatomaceous materials were in critically short supply, Dicalite steadily continued the research which had already made many contributions to industrial processing.

Look at the brand-new product pictured here — developed by Owens-Corning Fiberglas Corporation. It is a battery separator, made of Fiberglas, in which Dicalite serves so well as a filler because of its unique physical characteristics. Dicalite engineers worked with the technical staff of the manufacturer, who is now using a specially selected Dicalite material which is a vital part of the separator composition.

The problem may just as well have concerned filtration, insulation, or any other Dicalite application. Constant research and development work is one strong reason why Dicalite can serve you better, not only in variety and quality of products but in dependability as well. Perhaps you have a problem where this service may be helpful. A Dicalite engineer will gladly call at your request.

See "Diatomaceous Earth," in the February issue of Industrial and Engineering Chemistry. Write for your copy of our reprint to Dept. C-155 Dicalite Division.

ABOVE — An enlarged edge-view of the new Fiberglas battery separator which promises longer life for car and industrial batteries since it is completely insoluble in battery acids. At right is the main portion made of a composition containing Dicalite, which contributes two important advantages: extreme resistance to the acid, and high porosity.

Dependable GREAT LAKES Dicalite® DIATOMACEOUS MATERIALS

DICALITE DIVISION, GREAT LAKES CARBON CORPORATION • NEW YORK 17 • CHICAGO 1 • LOS ANGELES 17

PATENTS

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Flat Finish

U. S. Patent 2,627,478. Howard L. Bewick and Kenneth R. Brown, Chicago, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio.

A flatting composition comprising essentially a finely divided synthetic alkali metal-calcium-magnesium aluminum silicate substantially free from water soluble salts and a vehicle from the group consisting of varnishes and lacquers.

Coating Compositions With Propellant

U.S. Patent 2,617,780. Raymond H. Lutz, Wilton, Conn.

A coating composition capable of being applied in the form of a thin transparent coating to a surface to be coated, which comprises, methyl acrylate polymer dissolved in a solvent consisting of a mixture of chlorinated toluene 20% by weight, dichlorodifluoromethane 48% by weight, and trichloromonofluoromethane 32% by weight, said composition being maintained under pressure and in a confined space.

Stain Filler

U. S. Patent 2,628,206. George L. Deniston, Dayton, Ohio, assignor to Chadeloid Corporation, Wilmington, Del., a corporation of Delaware.

A combined wood stain and filler composition in the form of a solution-suspension, said composition comprising tetrahydrofurfuryl alcohol, and 1 to 15 parts by weight of dyestuff, 5 to 100 parts by weight of an air-drying unmodified phthalic anhydride glycerol resin, 5 to 30 parts by weight of polyvinyl alcohol, 10 to 120 parts by weight of hydrated precipitated calcium silicate, and morpholine.

Drying Oil

U. S. Patent 2,624,717. Edward M. Geiser, Downers Grove, Ill., assignor to Universal Oil Products Company, Chicago, Ill., a corporation of Delaware.

A process for the copolymerization of an unsaturated fatty acid glyceride ester and a mixture of conjunct polymers consisting essentially of polyolefinic, cyclic hydrocarbons having molecular weights of from about 250 to about 450 and containing from about 2 to about 4 double bonds per molecule, of which about 70% are conjugated, said process comprising thermally cobodying said ester and polymer mixture at a temperature of from about 150° to about 450° C., adding a copolymerization catalyst to the thermally cobodied product, and subjecting the latter to catalytic copolymerization at a temperature of from about 0° to about 300°C.

Water Impermeable, Water Vapor Permeable Coating

U. S. Patent 2,626,941. Bruce W. Habeck, Akron, Ohio, assignor to Wingfoot Corporation, Akron, Ohio, a corporation of Delaware.

A coating composition for use in preparing water impermeable, water vapor permeable coatings which is the product obtained by dispersing in a dispersion of a rubber a finely divided, solid, non-porous filler having a wet density in toluene of not more than 80 pounds per cubic foot, in an amount not less than that represented by the formula

$$x = 45.87 + 21.44y - 0.938y^2 + 1.625y^3$$

in which x equals grams of filler per 100 cubic centimeters of the rubber and y equals one-tenth the wet density, in pounds per cubic foot, of the filler in the dispersing medium of the dispersion.

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An improved formula, for producing pigmented or non-pigmented oils of better quality at less cost. Mild odor, good penetration, uniformly light color.
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SOLVENTS — 7-50-W HI-FLASH • CRUDE & REFINED COAL-TAR • WIRE ENAMEL THINNERS
SPECIALTIES — PHENOTHIAZINE • RUBBER COMPOUNDING MATERIALS • TAR PAINTS
Plants at Neville Island, Pa., and Anaheim, Cal.
P-49

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THE SHARPLES PORTABLE VAPORSEAL CLARIFIER

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CALENDAR OF EVENTS

May 4-6. 44th Annual Meeting of American Oil Chemists' Society, Roosevelt Hotel, New Orleans, La.

May 22-23. Spring Symposium of the Pacific Northwest Paint and Varnish Production Club. Multnomah Hotel, Portland, Ore.

June 4-6. 36th Annual Meeting of Chemical Institute of Canada. Prince Edward Hotel, Windsor, Ont.

Production Club Meetings

Baltimore, 2nd Friday, Park Plaza Hotel.
Chicago, 1st Monday, Furniture Mart.
C.D.I.C., 2nd Monday.
Cincinnati — Oct., Dec., Mar., May, Hotel Alms.
Dayton — Nov., Feb., April, Suttmillers.
Indianapolis — Sept., Claypoll Hotel.
Columbus — Jan., June, Fort Hayes Hotel.
Cleveland, 3rd Friday, Harvey Restaurant.
Dallas, 2nd Thursday, No Fixed Place.
Detroit, 4th Tuesday, Rackham Building.
Golden Gate, Last Monday, El Jardin Restaurant, San Francisco.
Houston, 2nd Tuesday, Seven Seas Restaurant.
Kansas City, 2nd Wednesday, Pickwick Hotel.
Los Angeles, 2nd Wednesday, Scully's Cafe.
Louisville, 3rd Wednesday, Seelbach Hotel.
Montreal, 1st Wednesday, Queen's Hotel.
New England, 3rd Thursday, Puritan Hotel, Boston.
New York, 1st Thursday, Building Trades Employers Assn.
Northwestern, 1st Friday, St. Paul Town and Country Club.
Pacific Northwest, Annual Meetings only.
Philadelphia, 3rd Wednesday, Engineer's Club.
Pittsburgh, 1st Monday, Fort Pitt Hotel.
St. Louis, 3rd Tuesday, Forest Park Hotel.
Southern, Annual Meetings Only.
Toronto, 3rd Monday, Diana Sweets, Ltd.
Western New York, 1st Monday, 40-8 Club, Buffalo.

Stain Filler Combination for Wood

U. S. Patent 2,632,710. John W. Mayers, Grosse Ile, Mich., assignor to Chadeloid Corporation, Wilmington, Del., a corporation of Delaware.

A wood staining and filling composition consisting of:
4.0 parts by weight Gum Manila
8.0 parts by weight diethylene glycol monoethyl ether
4.0 parts by weight dye solution comprising a water soluble aniline dye dispersed in tetrahydrofurfuryl alcohol
30.0 parts by weight resin-coated calcium carbonate
4.0 parts by weight wood flour
2.0 parts by weight Burnt Umber
4.0 parts by weight activated charcoal
13.0 parts by weight methanol
33.0 parts by weight toluol
and a thinner mixture consisting of:
5.0 parts by weight methanol
12.0 parts by weight toluol

Asphalt Composition

U. S. Patent 2,632,712. Norman E. Lemmon and Robert E. Karll, Hammond Ind., assignors to Standard Oil Company, Ill., a corporation of Indiana.

A composition of matter comprising a petroleum asphalt and from 0.1 to 2.0 percent by weight, based on the said asphalt, of a polymerized fat acid containing at least one double bond per molecule and moving a molecular weight between about 500 and 900.

A composition of matter comprising a petroleum asphalt and between 0.1 and 2.0 percent by weight, based on the said asphalt, of a material containing polymerized, polyunsaturated fat acids of which the predominant proportion is dilinoleic acid and a minor proportion is trilinoleic acid, the said acids having molecular weights respectively between about 560 and about 840.

Paint and Varnish Remover

U. S. Patent 2,630,409. Walter M. Bruner and James C. Lehr, Wilmington, Del., assignors to E. I. du Pont de Nemours & Company, Wilmington, Del., a corporation of Delaware.

A paint and varnish removing composition which consists essentially of 100 parts by weight of 1,1,2-trimethoxyethane and from 10 to 100 parts by weight, based on the weight of 1,1,2-trimethoxyethane, of a volatile organic liquid diluent of the class consisting of aromatic hydrocarbons, alkanes, and chloroalkanes.

A paint and varnish removing liquid composition consisting of 100 parts by weight of 1,1,2-trimethoxyethane and 10 to 100 parts by weight of benzene, 1 to 5 parts by weight of oxalic acid per 100 parts of the total composition, and 1 to 5 parts by weight of ethyl cellulose per 100 parts of the total of the composition.

Pulverulent Alkyl Cellulose Coating

U. S. Patent 2,631,943. Max Matter, Basel, Switzerland, assignor to Ciba Limited, Basel, Switzerland.

A process for the manufacture of a finely pulverulent mixture of an alkyl-cellulose, which is a member selected from the group consisting of methyl cellulose and ethyl cellulose and which is soluble in cold water and insoluble in hot water, and a finely pulverulent water-insoluble carrier, which comprises dissolving the alkyl-cellulose in cold water, then precipitating the alkyl-cellulose onto the finely pulverulent carrier by heating the cold solution after the introduction of the finely pulverulent carrier thereinto, drying the product thus obtained and grinding the same.

Stabilized Wax Compositions

U. S. Patent 2,625,491. David W. Young, Roselle, and Paul V. Smith, Jr., Westfield, N. J., assignors to Standard Oil Development Company, a corporation of Delaware.

An improved normally solid, light and heat stable petroleum wax composition comprising a substantially colorless petroleum wax, 0.01% to 1% of 2,6 di-t-butyl-4-methylphenol as a heat stabilizing agent and 0.01% to 1% of polyethylene glycol di, tri-ricinoleate as a light stabilizing agent in which the polyethylene glycol molecule, prior to esterification, has the formula:

$$HO\ (CH_2CH_2O)_nN$$

where n is an integer from 2 to 10.

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Treatment of Glyceride Oils

U. S. Patent 2,631,156. Karl F. Mattil, Chicago, Ill., assignor to Swift & Company, Chicago, Ill., a corporation of Illinois.

An improved method of separating a glyceride fatty material into higher and lower melting point constituents, which comprises dispersing throughout a liquefied glyceride fatty material a small amount of a sulphide of a high molecular weight alkyl substituted aryl ether carboxylic acid salt, cooling the said fatty material to crystallize the higher melting point constituents, and then separating the said constituents from the lower melting point constituents, the crystals of said higher melting point constituents formed on cooling being firmer and better defined to facilitate separation from the said lower melting point constituents.

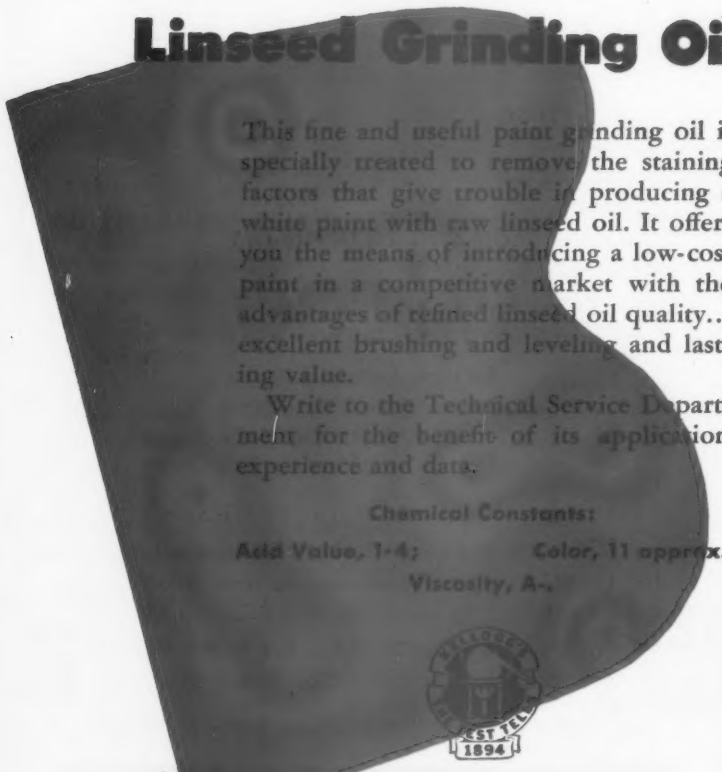
Fractionation of Triglycerides

U. S. Patent 2,631,157. Arthur W. Hixson, Leonia, N. J., and Ralph Miller, New York, N. Y., assignors to The Chemical Foundation, Incorporated, a New York membership corporation.

A method of treating an unbodied fatty oil containing a mixture of relatively saturated and relatively unsaturated triglycerides, the molecular weights of which all fall within a relatively small range, to obtain an oil fraction enriched in unsaturated triglycerides which comprises contacting said oil with a liquefied, normally gaseous hydrocarbon solvent, the ratio of liquefied, normally gaseous hydrocarbon solvent to oil and the contacting temperature being selected to form two immiscible liquid phases differing in density, said temperature being higher than the highest temperature at which the unbodied fatty oil and the solvent are completely miscible at the selected ratio; the less dense phase containing the bulk of the solvent and a portion of the fatty oil enriched in relatively saturated triglycerides and the more dense phase containing the remainder of the solvent and fatty oil said remaining portion of the fatty oil being enriched in relatively unsaturated triglycerides, separating the less dense phase from the more, dense phase and removing the solvent contained in the more dense phase to recover an oil fraction enriched in relatively unsaturated triglycerides.

SPENCER KELLOGG

Non-Staining Raw Linseed Grinding Oil


This fine and useful paint grinding oil is specially treated to remove the staining factors that give trouble in producing a white paint with raw linseed oil. It offers you the means of introducing a low-cost paint in a competitive market with the advantages of refined linseed oil quality... excellent brushing and leveling and lasting value.
Write to the Technical Service Department for the benefit of its application experience and data.
Chemical Constants:
Acid Value, 1-4; Color, 11 approx.
Viscosity, A-.
EST. 1894

The First Name in Vegetable Oils

SPENCER KELLOGG AND SONS, INC.
BUFFALO 5, N. Y.

Stabilized Polyesters

U. S. Patent 2,632,751. Thomas F. Anderson, Toledo, Ohio, assignor to Libbey-Owens-Ford Glass Company, Toledo, Ohio, a corporation of Ohio.

A stabilized thermosetting composition, comprising (1) as a binder, a polymerizable unsaturated alkyd resin whose molecule contains a plurality of polymerizably reactive $\Delta^{2,3}$-enedioyl groups; (2) a catalyst of the class consisting of organic peroxides and organic ozonides, in an amount from .01 to 5 per cent of the total weight of polymerizable binder; and, (3) as an agent for increasing the stability of the composition at atmospheric temperatures without proportionately decreasing the curability of the composition, in an amount from .02 to 2 per cent of the total weight of polymerizable binder, a nuclearly substituted arylhydroxide having at least one nuclear substituent that (a) consists at least in part of a monovalent hydrocarbon radical and (b) has no oxygen atom connected to an atom that is connected to the nucleus, the total number of oxygen and nitrogen atoms that are connected to any atom of said arylhydroxide that is connected to a nucleus being not greater than one; carried on a filler in contact with air, said filler being present in an amount from 40 to 85 per cent of the total weight of the composition.

3-Component Drying Oils

U. S. Patent 2,630,415. Howard L. Gerhart, Milwaukee, Wis., assignor to Pittsburgh Plate Glass Company, Allegheny County, Pa., a corporation of Pennsylvania.

A copolymer of a mixture consisting of a glyceride drying oil cyclopentadiene and a compound of a class consisting of a cyclic terpenolene and a terpene hydrocarbon.

FLOOR COATING

U. S. Patent 2,623,026. Thomas J. Hagley, Haddonfield, N.J., assignor to R. M. Hollingshead Corporation, Camden, N.J., a corporation of New Jersey.

A liquid floor coating composition comprising an aqueous dispersion consisting essentially of a mixture of a shellac, a terpene phenolic resin, a synthetic rubber selected from the class consisting of the (1) organic dihalide-inorganic polysulfide, (2) butadiene-acrylonitrile, and (3) butadiene-styrene copolymers, and a dispersing agent consisting essentially of a salt selected from the class consisting of the sulfates and phosphates of the higher saturated alcohol having an alkyl group consisting of from 8 to 17 carbon atoms, and the balance water, the total amount of said combined shellac and terpene phenolic resin being from 4 to 49 times the amount of synthetic rubber by weight.

Flowable Melamine Resin

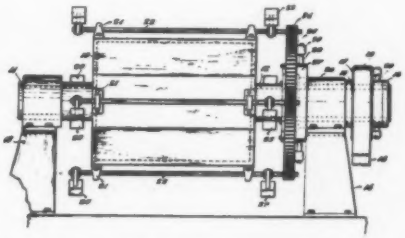
U. S. Patent 2,633,459. John F. Blais, Norwalk, Conn., assignor to American Cyanamid Company, New York, N. Y., a corporation of Maine.

A composition of matter comprising a melamine-formaldehyde resin and 0.025%-5% by weight, based on the weight of the resin, of diguanidine carbonate, wherein the mol ratio of melamine to formaldehyde is between about 1:1.5 and 1:3, respectively.

Rotary Grinding Ball Mill

U. S. Patent 2,633,303. Edward H. Cumpston, Jr., Lunenburg, Mass., assignor to Union Machine Company, Fitchburg, Mass., a corporation of Massachusetts.

A ball mill or the like comprising a drum, stationary bearings supporting the drum for rotation about a fixed horizontal axis, driving means connected to the drum for rotating the same, shafts mounted externally upon the drum parallel to the axis thereof in diagonally opposite locations, means for rotating said shafts at a higher speed of rotation than the drum, and eccentric weights carried by the shafts and set in opposed phase relation to each other.



U.S. Patent 2,633,303

Driers in Film Forming Compositions

U. S. Patent 2,631,944. Charles A. Coffey, Elmhurst, and Russell T. Ryan and Lynwood N. Whitehill, Chicago, Ill., assignors to The Sherwin-Williams Company, Cleveland, Ohio, a corporation of Ohio.

A composition of matter which comprises in combination an organic film forming agent containing drying oil fatty acid groups and an aromatic metal free organic drier catalyst selected from the group consisting of β-methyl umbelliferone, para-hydroxy benzaldehyde and parahydroxy propiophenone.

LANCASTER, ALLWINE & ROMMEL
REGISTERED PATENT ATTORNEYS

•

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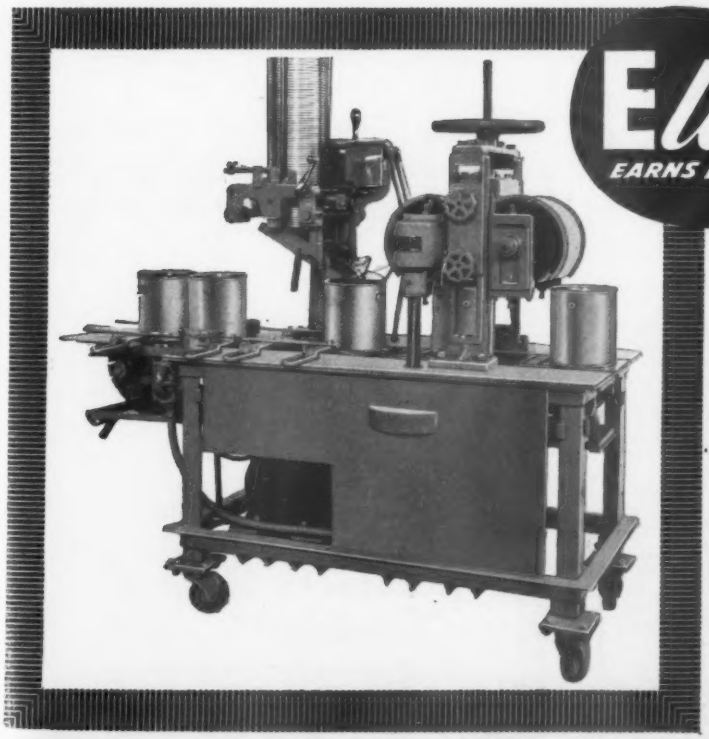

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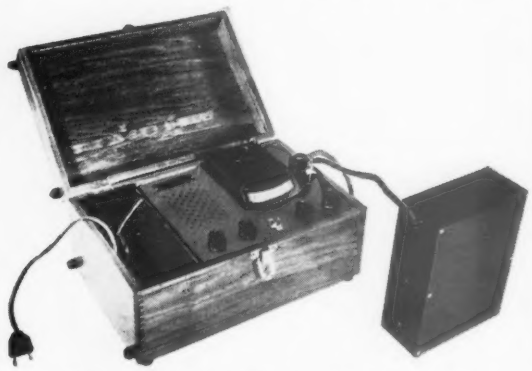

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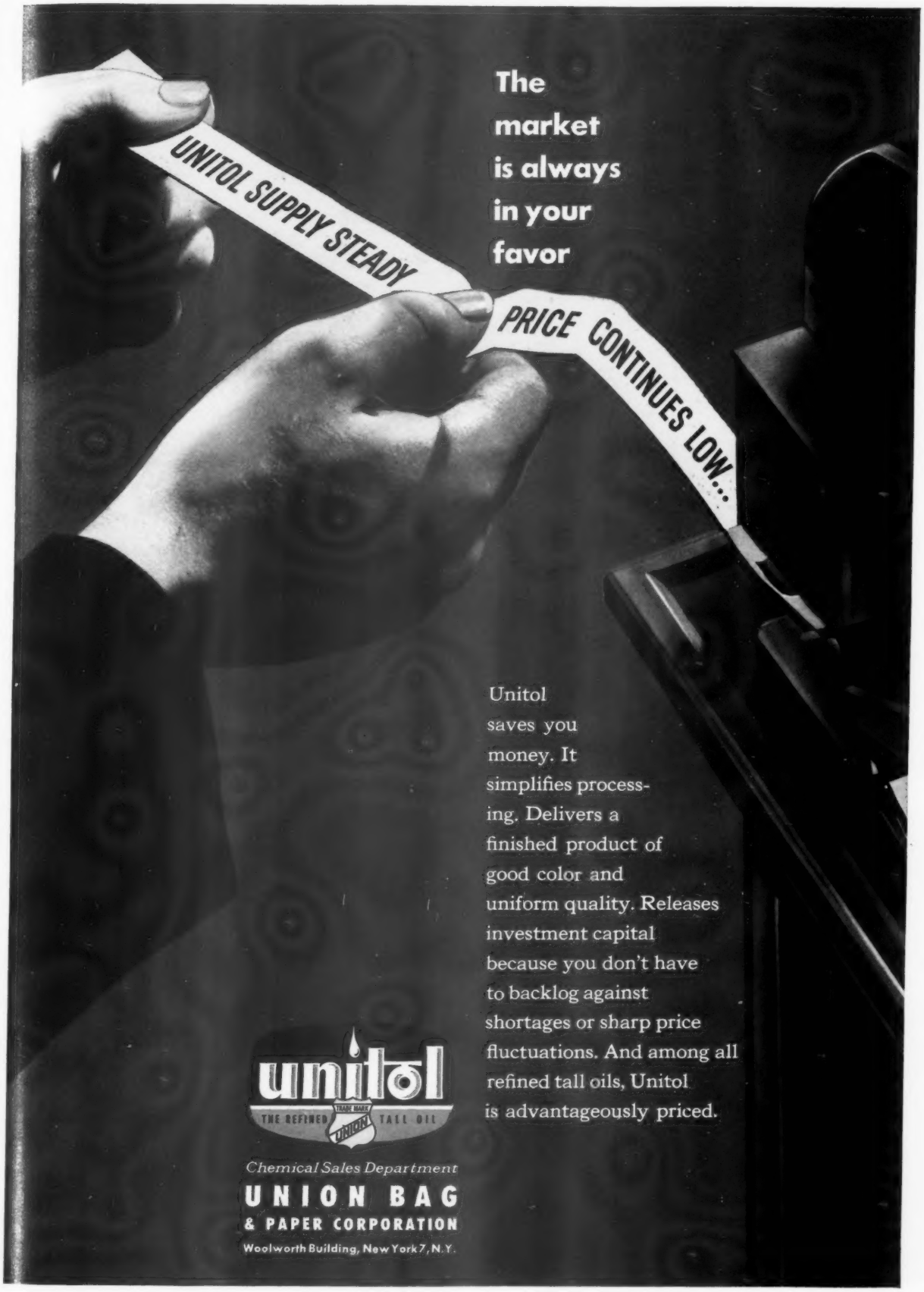
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abstracts

Theoretical Aspects of Flameproofing Cellulose

Schuyten, H. A., Weaver, J. W., and Reid, J. David, Southern Regional Research Laboratory, New Orleans, La. Presented at ACS, Div. of Paint, Plastics, and Printing Ink Chemistry, March 15-19, 1953, at Los Angeles, Calif.

Several theories have been proposed to explain how flaming is inhibited in the many processes that have been used to produce flameproof cloth or cellulosic materials. Such materials do not continue to flame after being removed from a source of ignition. These theories of thermal decomposition of treated cellulose and untreated cellulose, the latter also involving burning, are compared, and their applicability in explaining the flameproofing reactions is discussed.

It is concluded that only one chemical mechanism — namely, dehydration aided by a physical mechanism, accelerated gas production — can be adapted to universal application, to explain the behavior of all known flameproofing agents.

This chemical mechanism when elaborated in the light of current concepts of organic chemistry explains the flameproofing reaction with all flameproofers on the basis of catalytic dehydration operation through a Lewis acid-base interaction via a carbonium ion or carbanion mechanism. It is shown that accelerated gas production plays an important part in providing the over-all protection.

Much of the reasoning involved in the theory of catalytic dehydration should apply also to explain the flameproofing of wood.

Testing Fire-Retardant Paints

Grubb, Robert and Cranmer, Walter W., Industrial Test Laboratory, Philadelphia Naval Shipyard, Philadelphia, Pa. Presented at ACS, Div. of Paint, Plastics and Printing Ink Chemistry, March 15-19, 1953, at Los Angeles, Calif.

Simulated ship structures at the Naval Damage Control Training Center, Philadelphia, are available for the study of the behavior of materials in fires of the type to be expected in service. This investigation was planned to compare the flammability of several existing government paint formulations and proposed commercial fire-retardant products with the Navy standard fire-retardant inside white. A second objective was to determine whether any of the paints may serve as a means by which fire could spread from one compartment to those adjacent.

Single exposures conducted within the hangar deck were sufficiently conclusive to demonstrate large differences in flammability, for example, between the standard fire-retardant inside white and white enamel. Where minor differences are concerned, they cannot be conclusively demonstrated without some replication of the test procedure. The degree of replication is not known.

The tests indicated several of the paint systems approach or exceed the navy standard in regard to fire retardancy. It was demonstrated also that thin films of inherently flammable paints can be ignited by the heat transmitted through a bulkhead or deck

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acetone
n-butyl acetate
ethyl acetate
2-ethylbutyl alcohol
2-ethylhexyl alcohol
isobutyl acetate
isobutyl alcohol
isopropyl acetate

PLASTICIZERS

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diethyl phthalate
di-(2-ethylbutyl) phthalate
di-(2-ethylhexyl) phthalate (DOP)
di-(methoxyethyl) phthalate
dimethyl phthalate
di-2-ethylhexyl adipate
di-isobutyl phthalate

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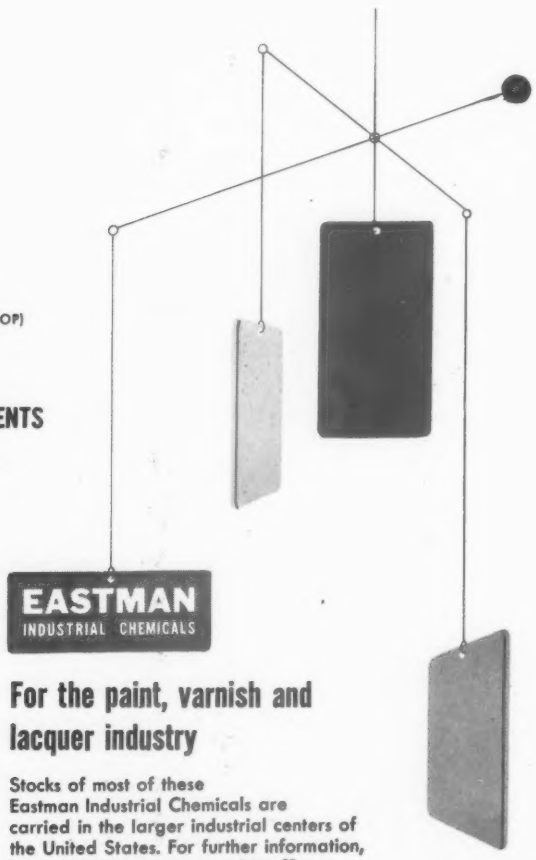
mono-tert-butyl hydroquinone
Tenamene 20

FILM BASES

cellulose acetate
cellulose acetate butyrate



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PAINT PURCHASES

(From page 37)

work. It should be prepared by an expert in these matters who has looked over the buildings and properties in question.

In order to develop concrete proof of the success of the plan outlined above and to determine whether the program is being properly carried out, a system of reporting on various jobs from time to time must be worked out. Thus a job would be completed on a certain date, which is then recorded and arrangements made to inspect the work and determine the results every six months. This need not be cumbersome and time consuming but should consist of requiring authority to report on a form during each of his periodic visits.

Upon receipt of these reports the central bureau would record the data on master cards prepared for the purpose. In a very short period there would be a collection of information which would indicate whether corrective measures should be applied.

•

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Rates: $.20 per word, except those seeking employment, for which rate is $.10 per word. Minimum: ten words. Address all replies to Box Number, c/o Paint and Varnish Production, 855 Avenue of the Americas, New York 1, New York.

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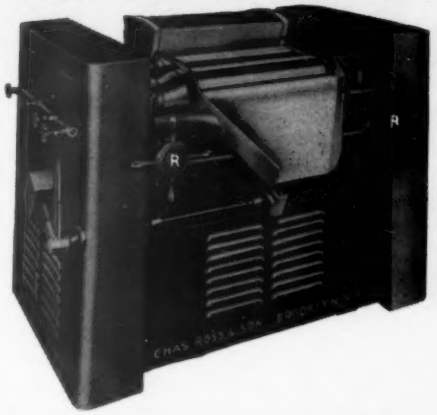

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Send for samples and prices

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MALEIC SYMPOSIUM

(*From Page 41*)

treated oils has been as maleic modified soya in outside house paints, both in unbodied and bodied versions. Formulation is similar to that used where linseed oil is the vehicle; generally a partial replacement of linseed oil is employed although 100% maleic modified soy paints have generally good properties. Durability characteristics of maleic modified soy exterior paints have stood the test of time, both on test fence and practical home exposures. Another important use of maleic modified soybean oils has been in the preparation of oleoresinous vehicles for non-yellowing interior finishes; in this application it has constituted an important replacement for dehydrated castor oil.

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By simply opening a valve, you can put Heyden Formaldehyde to work in your process. Your pumps and pipe lines will deliver from your storage tanks a reliable raw material which will assure top quality in your finished product.
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NEWS DIGEST

Joseph Mazia

Gray Company Names Washington D. C. Firm Technical Consultant

Gray Company, Inc,. of Minneapolis, Minnesota, manufacturers of special equipment for the transfer of fluids and semi-fluids used in the fields of protective coatings, has appointed the firm of Joseph Mazia Consulting Engineers as their special technical representatives.

The Mazia Company, of 1424 K Street, N. W. Washington 5, D. C., will promote Gray's line of Graco equipment designed for military establishments and government agencies.

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DISPERSING AGENTS

Two-page data sheet is concerned with the use of "Sotex" dispersing agents in the coatings industry.

Effectiveness and functions of both the non-ionic and cationic agents are discussed in detail. Also, included in these data sheets are recommended methods for obtaining optimum efficiency with various pigments, and amounts and types of the dispersing agents to be used with alkyd and oleoresinous vehicles, amine modified alkyds, plastisol dispersions, nitrocellulose and vinyl coatings. Synthetic Chemicals, Inc., 335 McLean Blvd., Paterson, N. J.

TECHNICAL Bulletins

ADJUSTABLE RAMPS

Four-page brochure, illustrating and describing its "Adjust-A-Dock" and "Adjust-A-Truck" is available from Rowe Methods, Inc., 2534 Detroit Ave., Cleveland 13, Ohio.

Both units are designed to increase handling efficiency on shipping and receiving docks. The "Adjust-A-Dock" bridges the difference in height between docks and rail cars and highway trucks.

The "Adjust-A-Truck" is designed for those firms who do not have adequate room on their docks or in front of their docks to install adjustable dock ramps.

Application photos, photos of main components, engineering drawings, specifications, operating and construction features, and other data are listed in brochure.

PELARGONIC ACID

Bulletin containing tentative specifications, typical characteristics and reactions, and applications of Emery Industries, Inc.'s new grade 892-R Pelargic acid is now available.

The acid may be obtained in experimental and pilot quantities. Typical composition of the acid is as follows: Pelargonic acid (C8 H17 COOH). . .91 per cent; Caprylic acid (C7 H15 COOH. . .5 per cent); Capric acid (C9 H19 COOH). . .4 per cent.

For copy of bulletin write the firm at Dept. 5 Carew Tower, Cincinnati 2, Ohio.

MATERIALS HANDLING EQUIPMENT

Catalog on lightweight materials handling equipment has recently been released by the Tobey Manufacturing Corporation.

The publication covers the complete line of Tobey materials handling trucks, constructed entirely of aluminum. They are said to weigh from one-third to one-fourth as much as conventional wood or steel trucks. Tobey Manufacturing Corp., 1221 El Segundo Blvd., El Segundo, Calif.

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DUST COLLECTOR

Bulletin No. 915, describing the Type "CH-3" self-cleaning cloth screen dust collector has just been published by the Pangborn Corporation of Hagerstown, Md.

Six-page publication illustrates the engineering features of dust collector unit which uses the principle of reverse air flow for continuous cleaning of the cloth filters.

Collector is furnished in six screen high construction as standard, except for small air volume problems for which four or five screen high, 5 ft. long screen sections will suffice.

GAS BURNERS

Bulletin, SC-1001, describes "Spear" flame burner in the five sizes manufactured. Full size illustrations of the burners and the flame length produced by them, together with BTU capacity, port area and full dimensions are listed in publication.

The burners are normally used for open firing either individually or in groups where focused or spot heat is required. Bulletin may be obtained from the Selas Corporation of America, Philadelphia 34, Pa.

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TECHNICAL BULLETIN NO. 12
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Ask to be placed on the regular Association mailing list to receive subsequent Technical Bulletins based on research on the use of Mica in Latex and other type paints.

EXPORT PACKING

Brochure entitled, "Export Packing" has been prepared for American manufacturers who ship products overseas.

The booklet starts with an analysis of the goods to be shipped in the light of container protection required for various types of loads, continues with determination of box or crate specifications, nailing, strapping, interior blocking, bracing and packing, and marking procedures, and closes with a summary of these operations.

A glossary of terms and list of government specifications are included for reference purposes.

National Wooden Box Association, Barr Building, Washington 6, D. C.

DIATOMITE STORY

28-page brochure, "Celite — The Story of Diaomite," has just been published by Johns-Manville, 22 East 40th Street, New York 16, N.Y.

The first section of brochure tells what a diatom is and explains how these marine organisms emerged as the unique deposit in California known as the White Hills of Lompoc.

Succeeding sections describe the uses of diatomite — as a mineral filler in the manufacture of paint, plastics, paper, as a filter powder for water purification, etc. The story concludes with a prediction of new things that may be expected.

ORGANIC CHEMICALS

Shell Chemical Corporation has made available to the chemical industry a new "Organic Chemicals" catalog.

Generously illustrated, the brochure devotes almost 100 pages to the properties, specifications, and applications of the company's solvents, industrial chemicals, resins and plastics.

In connection with these, there is a full section describing the facilities of Shell's technical service laboratory in Union, New Jersey.

The catalog concludes with a description of the company's national distribution system. Copies of the catalog can be secured at any of the Shell Chemical sales offices.

PLIOLITE S-5 PAINTS

12-page booklet contains helpful hints on using paints with Goodyear's "Pliolite S-5."

Surface preparations and application procedures are recommended for stucco, brick, asbestos shingles, concrete blocks, concrete floors, metal surfaces and plaster walls.

Booklet may be obtained from local paint dealers, paint manufacturers, or by writing Goodyear Chemical Division, Akron 6, Ohio.

METALLIC SOAPS

The relative effectiveness of the various metallic soaps as gelling agents are discussed in an article titled "Metallic Soaps as Gelling Agents for Plastigels," released by the Witco Chemical Company.

Full descriptions of the procedures followed, as well as data obtained, are contained in the article prepared by K. Parker and L. Tritsch, both of Witco.

For copies, write to firm at 260 Madison Ave., New York 16, N.Y.

LATEX PAINTS

The consumption of latex paints has increased from 2 to 40 million gallons per year from 1949 to 1953, according to a recent study made by R. S. Aries & Associates, New York.

These and other facts revealed in the study are given in the latest edition of Chemonomics, Aries' four-page house organ.

The issue also contains articles on casting resins, reinforced plastics, business oportunities in Puerto Rico, and many other technical and economic developments in the chemical process industries.

Copies of Chemonomics may be obtained from R. S. Aries & Associates, 400 Madison Ave., New York 17, N.Y.

CHEMICAL PRODUCTS

Twenty-eight page catalogue covers such product groups as wetting agents, emulsifiers, brighteners, and dyeing assistants.

The booklet list applications suggestions in a wide range of industry including the paint, rubber, and synthetic fiber fields.

Copies of the catalogue may be obtained by writing Harold G. Shelton, Sales Manager, Antara Chemicals Div., General Dyestuff Corporation, 435 Hudson St., New York 14, N.Y.

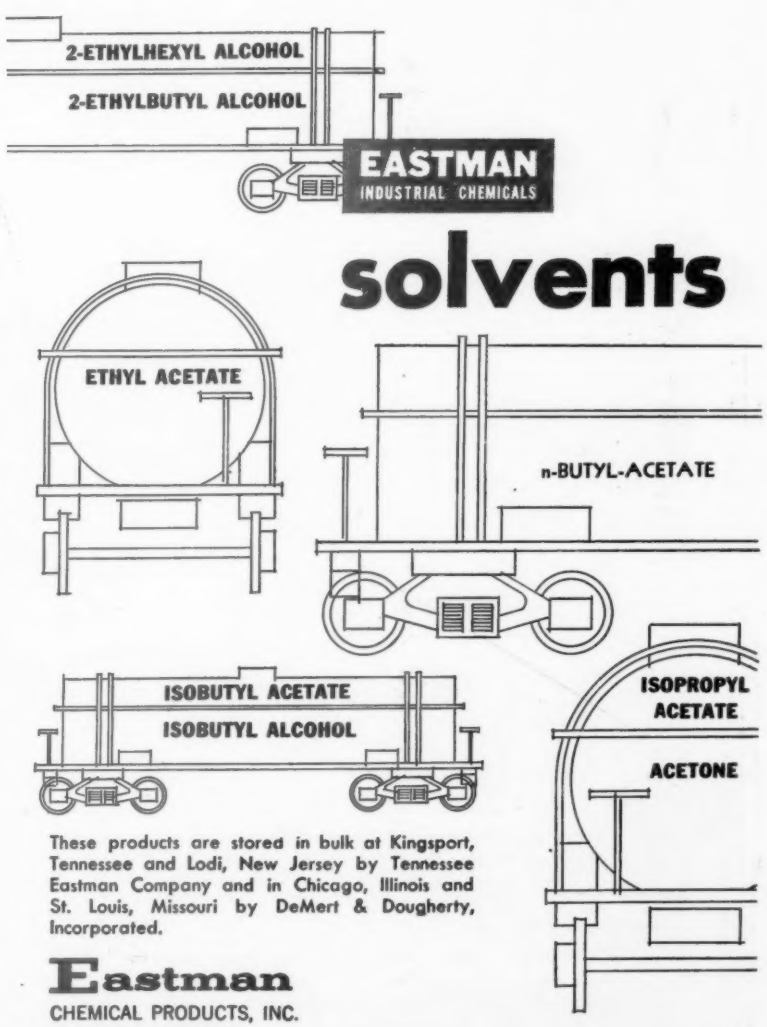
PORTABLE BELT CONVEYOR

Four-page folder showing applications and features of "Rapistan Stevedore, Jr." portable belt conveyor has been issued by the Rapids-Standard Company, Inc., 342 Rapistan Building, Grand Rapids 2, Mich. Unit is designed for use in many types of industry for stacking, power boosting and truck loading jobs. Called Bulletin SJA-53, the folder also presents specifications and features of conveyor in chart and table form.

X-RAY DIFFRACTION WORK

Folder contains two articles titled "How X-Ray Diffraction Gets Answers to Difficult Questions" and "Catalysts: The Inside Story," describes work being done with rubber, plastic polymers and other ingredients.

Illustrated with photos and charts, the folder is available from C. J. Woods, Research and Control Instruments Division, North American Philips Company, Inc., 750 South Fulton Ave., Mount Vernon, N.Y.



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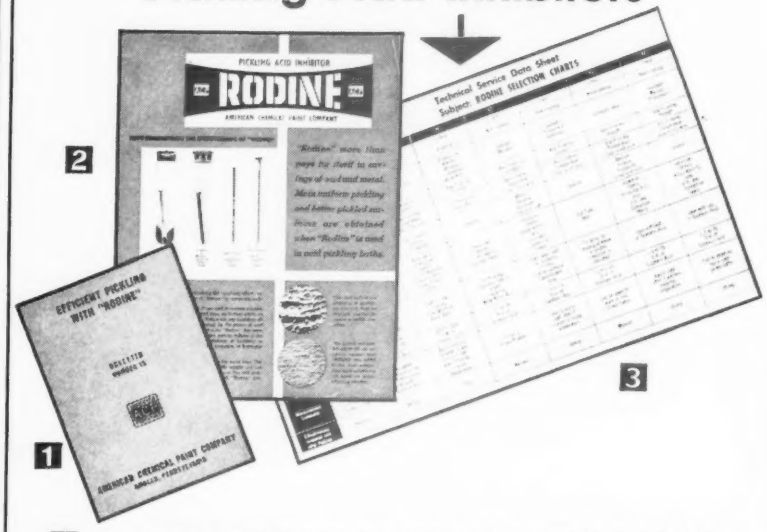

1 The standard reference work on pickling, "Efficient Pickling With RODINE" — Bulletin Number 13 — is now available in a new, revised edition.

2 This new 4-page general descriptive folder presents essential information on "Rodine" pickling acid inhibitors.

3 The recently revised "RODINE SELECTION CHART" gives characteristics of and uses for typical "Rodines" used with sulfuric and muriatic acids. Technical Service Data Sheet No. 13-1-1-4.

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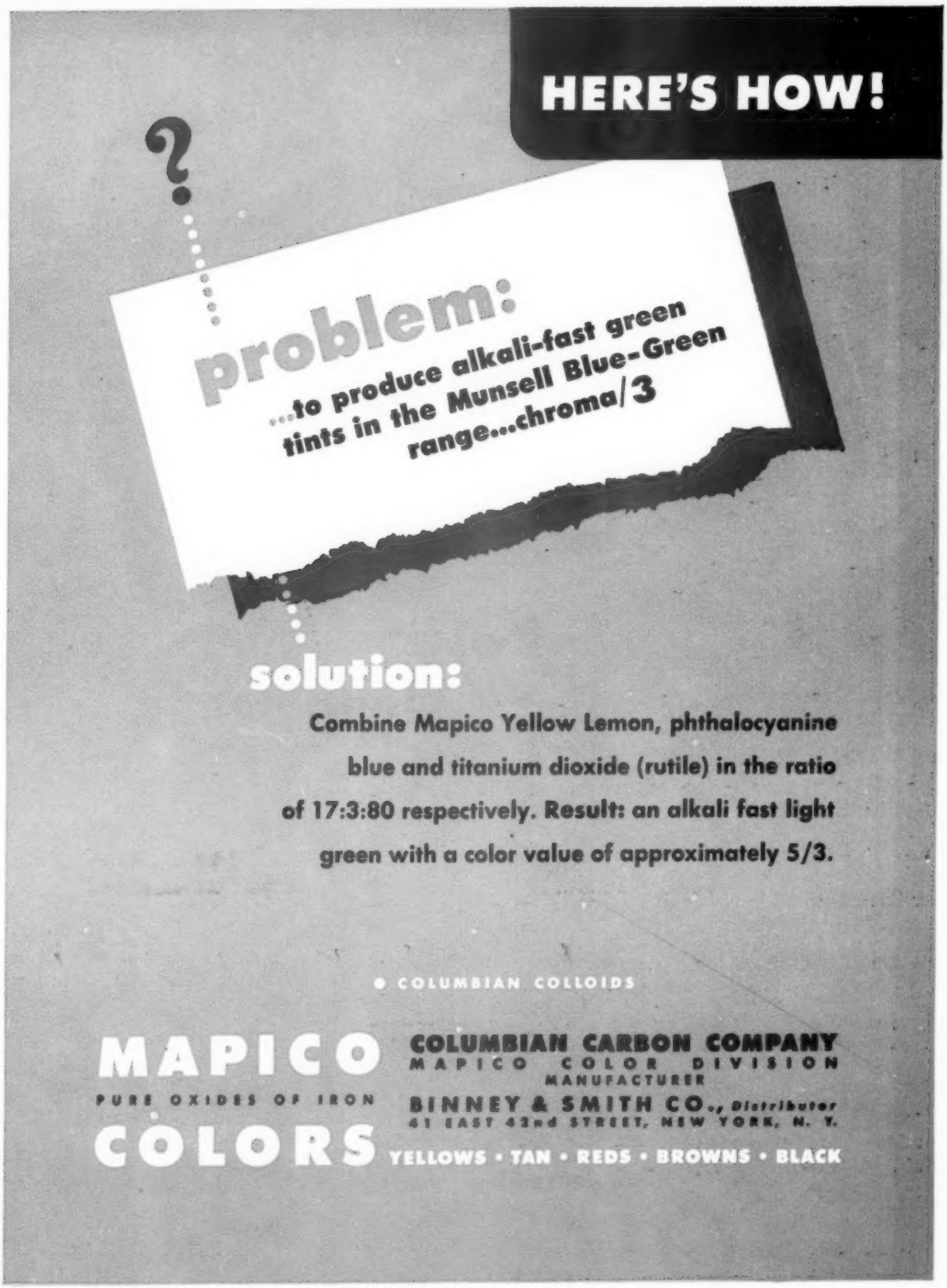
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